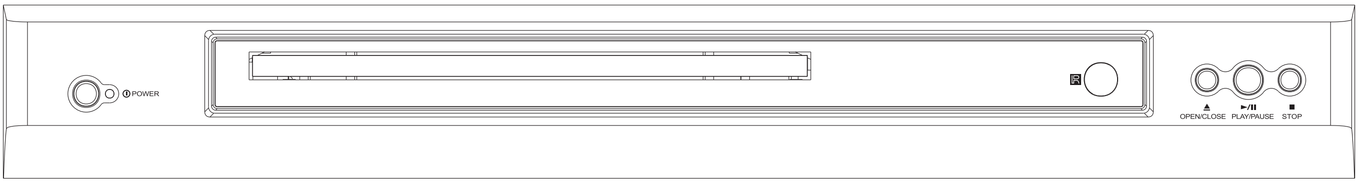
SERVICE MANUAL

DV113S



CONTENTS

1. SAFETY PREAUTIONS

1.1 GENERAL GUIDELINES

1. When servicing, observe the original lead dress. if a short circuit is found, replace all parts which have been overheated or damaged by the short circuit.

2. After servicing, see to it that all the protective devices such as insulation barrier, insulation papers shields are properly installed.

3. After servicing, make the following leakage current checks to prevent the customer from being exposed to shock hazards.

2.PREVENTION OF ELECTRO STATIC DISCHARGE(ESD)TO ELECTROSTATICALLY SENSITIVE(ES)DEVICES

Some semiconductor(solid state)devices can be damaged easily by static electricity. Such components commonly are called Electrostatically Sensitive(ES)Devices. Examples of typical ES devices are integrated circuits and some field-effect transistors and semiconductor chip components. The following techniques should be used to help reduce the incidence of component damage caused by electro static discharge(ESD).

1. Immediately before handling any semiconductor component or semiconductor-equipped assembly, drain off any ESD on your body by touching a known earth ground. Alternatively, obtain and wear a commercially availabel discharging ESD wrist strap, which should be removed for potential shock reasons prior to applying power to the unit under test.

2. After removing an electrical assembly equipped with ES devices,place the assembly on a conductive surface such as alminum foil, to prevent electrostatic charge buildup or exposure of the assembly.

3. Use only a grounded-tip soldering iron to solder or unsolder ES devices.

4. Use only an anti-static solder removal device. Some solder removal devices not classified as anti-static (ESD protected)can generate electrical charge sufficient to damage ES devices.

5. Do not use freon-propelled chemicals. These can generate electrical charges sufficient to damage ES devices.

6. Do not remove a replacement ES device from its protective package until immediately before you are ready to install it. (Most replacement ES devices are packaged with leads electrically shorted together by conductive foam, alminum foil or comparable conductive material).

7. Immediately before removing the protective material from the leads of a replacement ES device, touch the protective material to the chassis or circuit assembly into which the device will be installed.

Caution

Be sure no power is applied to the chassis or circuit, and observe all other safety precautions.

8. Minimize bodily motions when handling unpackaged replacement ES devices. (Otherwise harmless motion such as the brushing together of your clothes fabric or the lifting of your foot from a carpeted floor can generate static electricity(ESD).

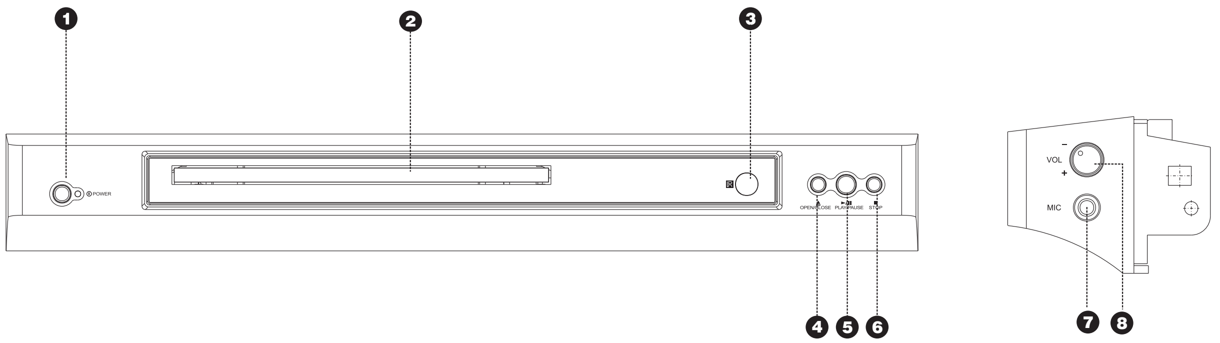
notice (1885x323x2 tiff)

IMPORTANT SAFETY NOTICE

There are special components used in this equipment which are imporant for safety.
These parts are marked by ⚠ in the schematic diagrams, Exploded Views and replacement parts list. It is essential that these critical parts should be replaced with manufacturer's specified parts to prevent shock, fire, or other hazards. Do not modify the original design without permission of manufacturer.

3.Control Button Locations and Explanations

■ Front Panel Illustration



❶ **POWER** switch

❷ **Disc** tray

❸ **IR SENSOR** button

❹ **OPEN/CLOSE** button

❺ **PLAY/PAUSE** button

❻ **STOP** button

❼ **MIC** jack

❽ **MIC VOLUME** button

4.PREVENTION OF STATIC ELECTRICITY DISCHARGE

The laser diode in the traverse unit (optical pickup)may brake down due to static electricity of clothes or human body. Use due caution to electrostatic breakdown when servicing and handling the laser diode.

4.1.Grounding for electrostatic breakdown prevention

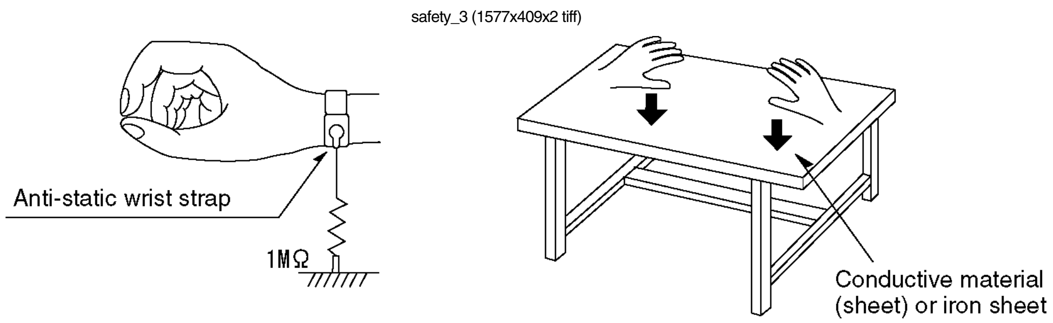
Some devices such as the DVD player use the optical pickup(laser diode)and the optical pickup will be damaged by static electricity in the working environment.Proceed servicing works under the working environment where grounding works is completed.

4.1.1. Worktable grounding

1. Put a conductive material(sheet)or iron sheet on the area where the optical pickup is placed,and ground the sheet.

4.1.2.Human body grounding

1 Use the anti-static wrist strap to discharge the static electricity from your body.



4.1.3.Handling of optical pickup

1. To keep the good quality of the optical pickup maintenance parts during transportation and before installation, the both ends of the laser diode are short-circuited.After replacing the parts with new ones, remove the short circuit according to the correct procedure. (See this Technical Guide).

2. Do not use a tester to check the laser diode for the optical pickup .Failure to do so willdamage the laser diode due to the power supply in the tester.

4.2. Handling precautions for Traverse Unit (Optical Pickup)

1. Do not give a considerable shock to the traverse unit(optical pickup)as it has an extremely high-precise structure.

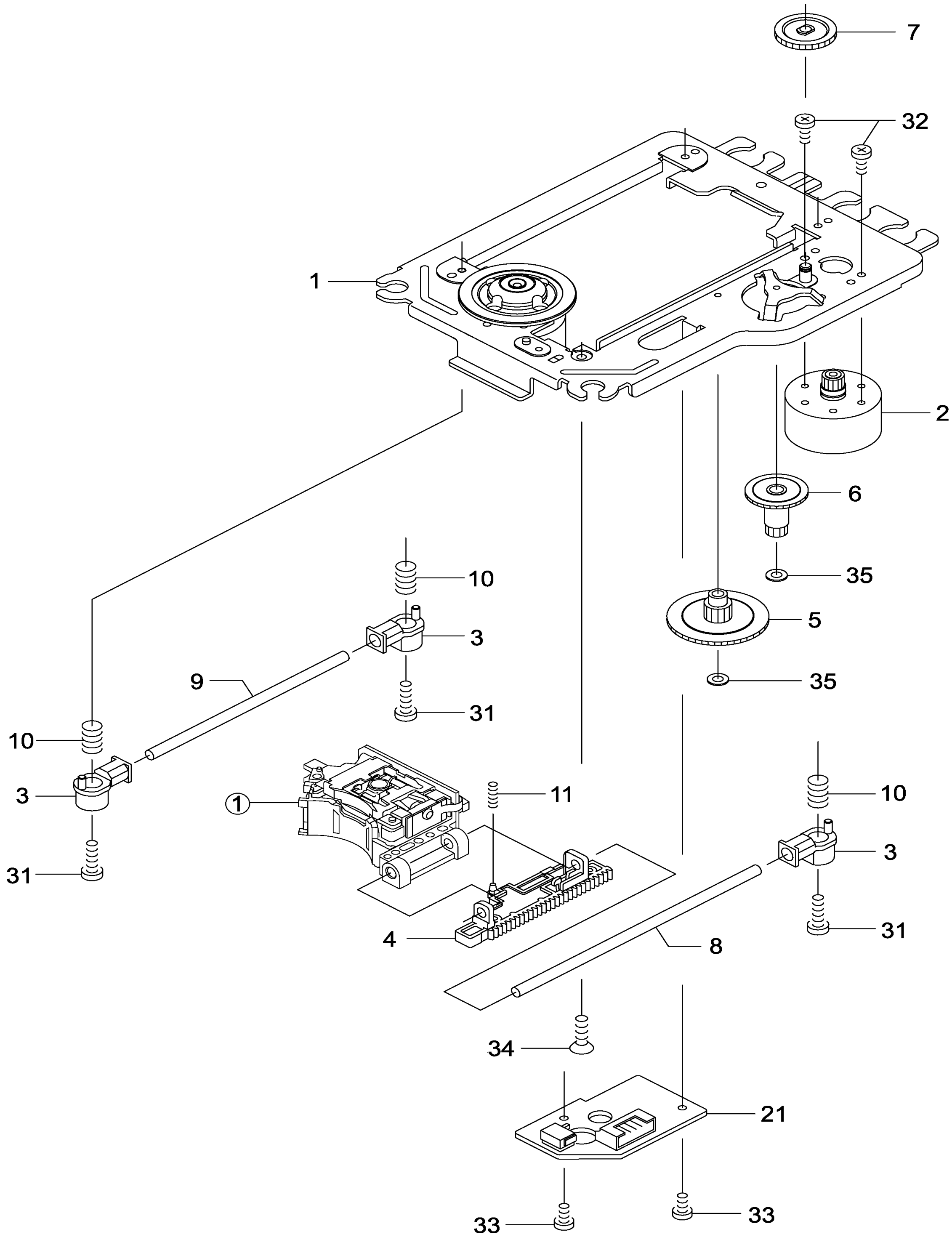
2. When replacing the optical pickup, install the flexible cable and cut is short land with a nipper. See the optical pickup replacement procedure in this Technical Guide. Before replacing the traverse unit, remove the short pin for preventingstatic electricity and install a new unit.Connect the connector as short times as possible.

3. The flexible cable may be cut off if an excessive force is applied to it.Use caution when handling the cable

4. The half-fixed resistor for laser power adjustment cannot be adjusted. Do not turn the resistor.

5. Assembling and disassembling the mechanism unit

5.1 Optical pickup Unit Explosed View and Part List



Pic (1)

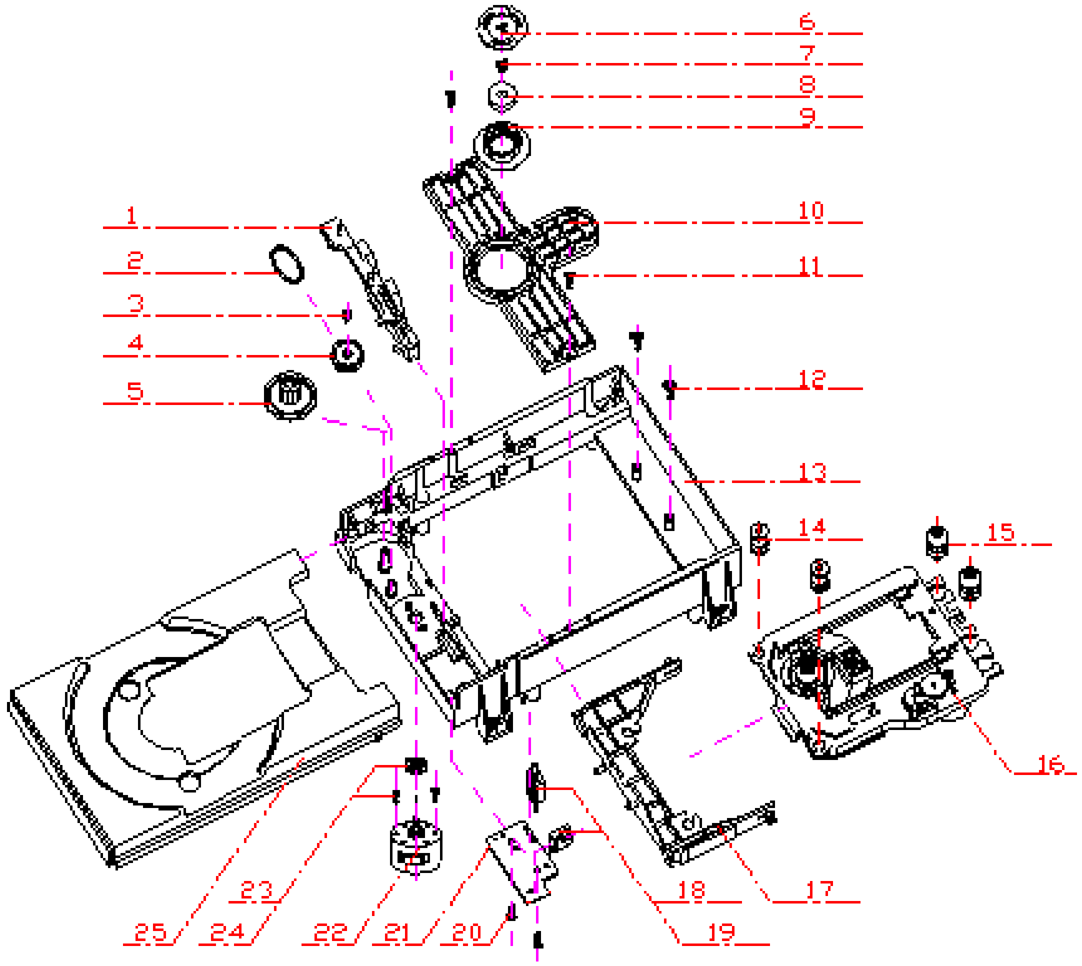
Materials to Pic (1)

No.	PARTS CODE	PARTS NAME	Q' ty
①	14692200	SF-HD60	1
1	1EA0311A06300	ASSY, CHASSIS, COMPLETE	1
2	1EA0M10A15500	ASSY, MOTOR, SLED	1
Or	1EA0M10A15501	ASSY, MOTOR, SLED	1
3	1EA2451A24700	HOLDER, SHAFT	3
4	1EA2511A29100	GEAR, RACK	1
5	1EA2511A29200	GEAR, DRIVE	1
6	1EA2511A29300	GEAR, MIDDLE, A	1
7	1EA2511A29400	GEAR, MIDDLE, B	1
8	1EA2744A03000	SHAFT, SLIDE	1
9	1EA2744A03100	SHAFT, SLIDE, SUB	1
10	1EA2812A15300	SPRING, COMP, TYOUSEI	3
11	1EA2812A15400	SPRING, COMP, RACK	1
21	1EA0B10B20100	ASSY, PWB	1
Or	1EA0B10B20200	ASSY, PWB	1
31	SEXEA25700---	SPECIAL SCREW BIN+-M2X11	3
32	SEXEA25900---	SPECIAL SCREW M1.7X2.2	2
33	SFBPN204R0SE-	SCR S-TPG PAN 2X4	2
34	SFSFN266R0SE-	SCR S-TPG FLT 2.6X6	1
35	SWXEA15400---	SPECIAL WASHER 1.8X4 X0.25	2

□□□□□□□□□□□□□□□□□□□□□□□□□□□□□

Note : This parts list is not for service parts supply.

5.2 Bracket Explosed View and Part List



Pic (2)

Materials to Pic(2)

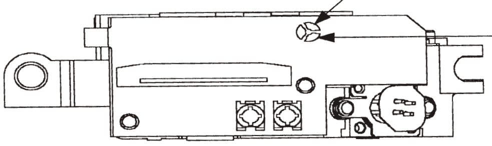
1.bracket
2.belt
3.screw
4.belt wheel
5.gearwheel
6.iron chip
7. Immobility mechanism equipment
8. Magnet
9. Platen
10. Bridge bracket
11. screw
12. screw
13. Big bracket
14. front silicon rubber
15. Back silicon rubber
16. Pick-up
17. Pick-up
18. switch
19. Five-pin flat plug
20. screw
21. PCB
22. motor
23. Motor wheel
24. screw
25.tray

Before going process with disassembly and installation, please carefully both peruse the chart and confirm the materials.

5.3 MISCELLANEOUS

5.3.1 Protection of the LD(Laser diode)

Short the parts of LD circuit pattern by soldering.



5.3.2 Cautions on assembly and adjustment

Make sure that the workbenches,jigs,tips,tips of soldering irons and measuring instruments are grounded,and that personnel wear wrist straps for ground.

Open the LD short lands quickly with a soldering iron after a circuit is connected.

Keep the power source of the pick-up protected from internal and external sources of electrical noise.

Refrain from operation and storage in atmospheres containing corrosive gases (such as H2S,SO2, NO2 and Cl2)or toxic gases or in locations containing substances(especially from the organic silicon,cyan, formalin and phenol groups)which emit toxic gases.It is particularly important to ensure that none of the above substances are present inside the unit.Otherwise,the motor may no longer run.

6.Electrical Confirmation

6.1. Video Output (Luminance Signal) Confirmation

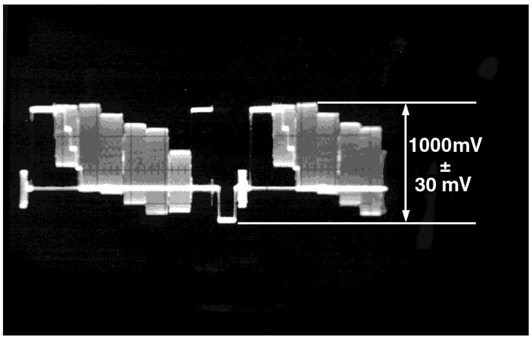
DO this confirmation after replacing a P.C.B.

Measurement point	Mode	Disc
Video output terminal	Color bar 75% PLAY(Title 46):DVDT-S15 PLAY(Title 12):DVDT-S01	DVDT-S15 or DVDT-S01
Measuring equipment,tools	Confirmation value	
200mV/dir,10 μ sec/dir	1000mVp-p±30mV	

Purpose:To maintain video signal output compatibility.

1.Connect the oscilloscope to the video output terminal and terminate at 75 ohms.

2.Confirm that luminance signal(Y+S)level is 1000mVp-p±30mV



6.2 Video Output(Chrominance Signal) Confirmation

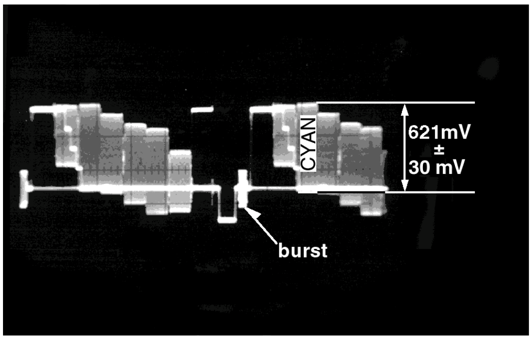
Do the confirmation after replacing P.C.B.

Measurement point	Mode	Disc
Video output terminal	Color bar 75% PLAY(Title 46):DVDT-S15 PLAY(Title 12):DVDT-S01	DVDT-S15 or DVDT-S01
Measuring equipment,tools	Confirmation value	
Screwdriver,Oscilloscope 200mV/dir,10 μ sec/dir	621mVp-p±30mV	

Purpose:To maintain video signal output compatibility.

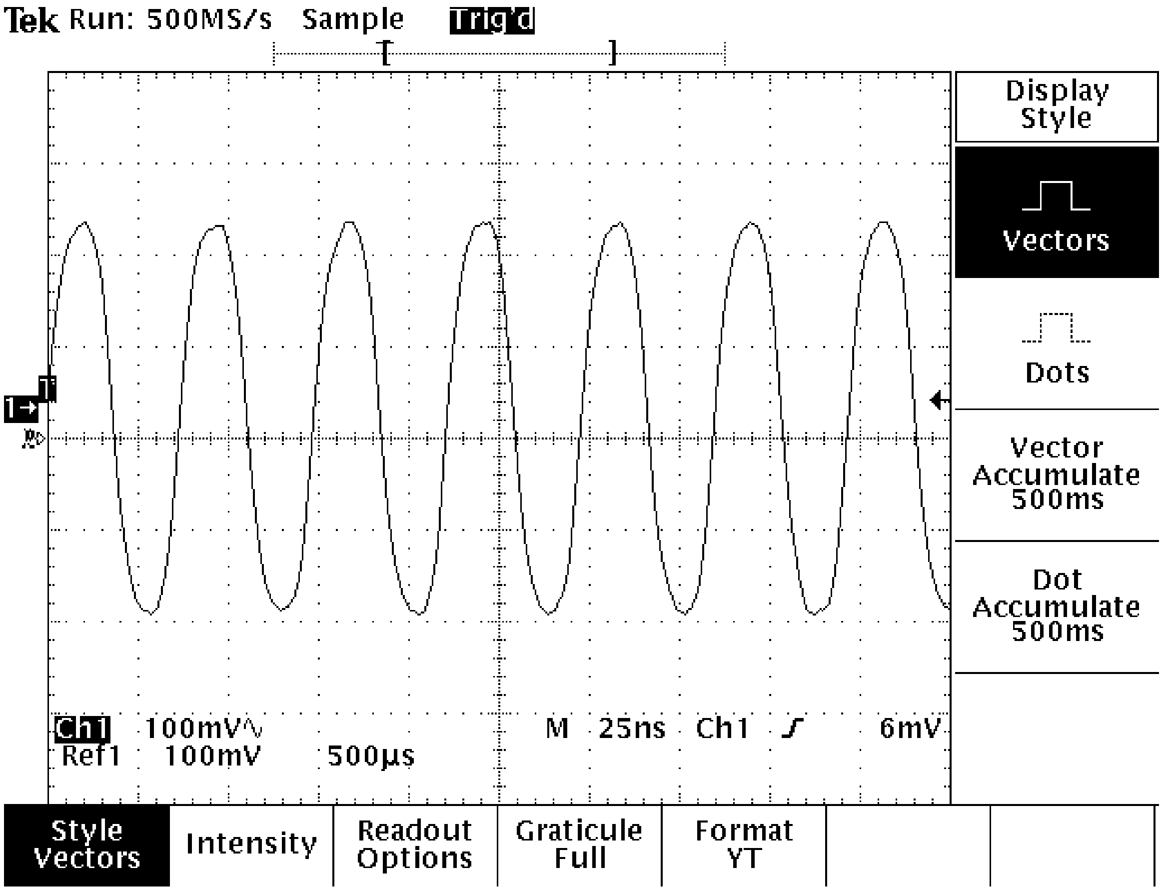
1.Connect the oscilloscope to the video output terminal and terminate at 75 ohme.

2.Confirm that the chrominance signal(C)level is 621 mVp-p±30mV

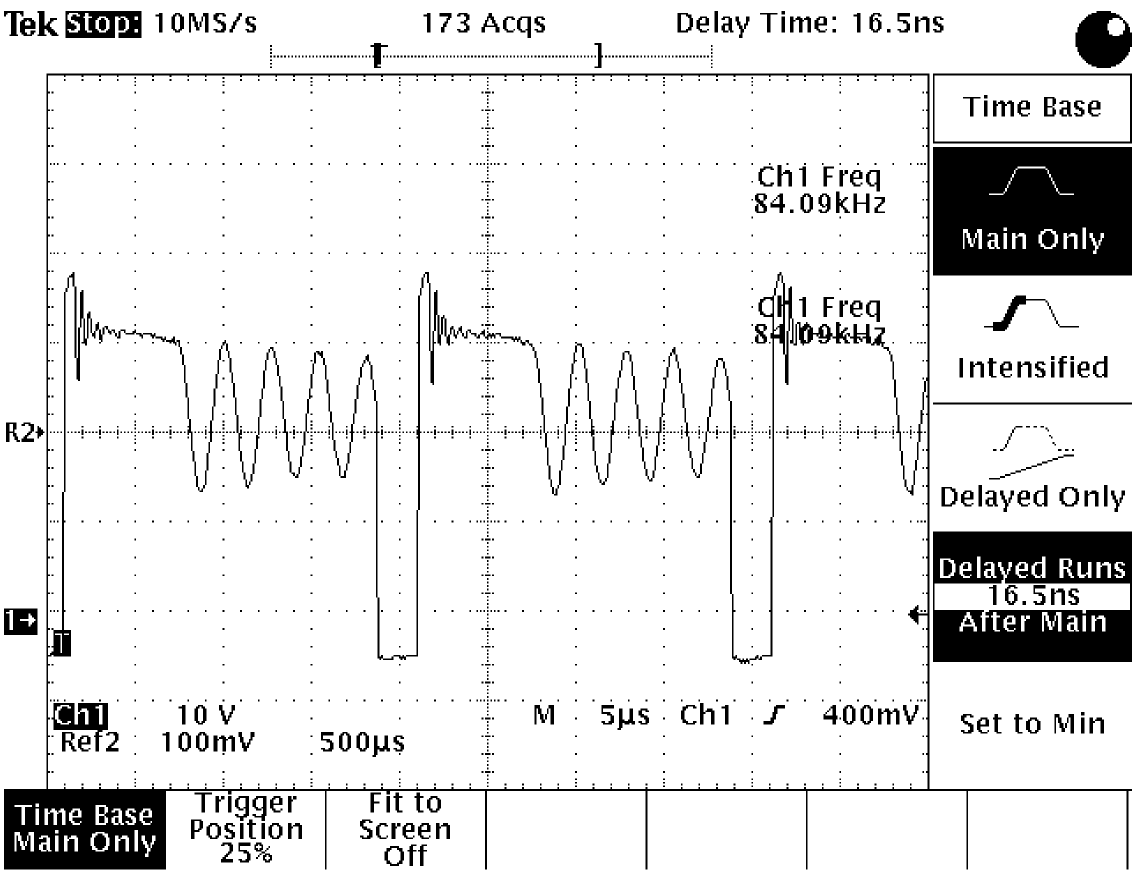


7.MPEG BOARD CHECK WAVEFORM

7.1 27MHz WAVEFORM



7.2 ICVIPER22 PIN.5 WAVEFORM DIAGRAM



8.2 MT1389

MT1389

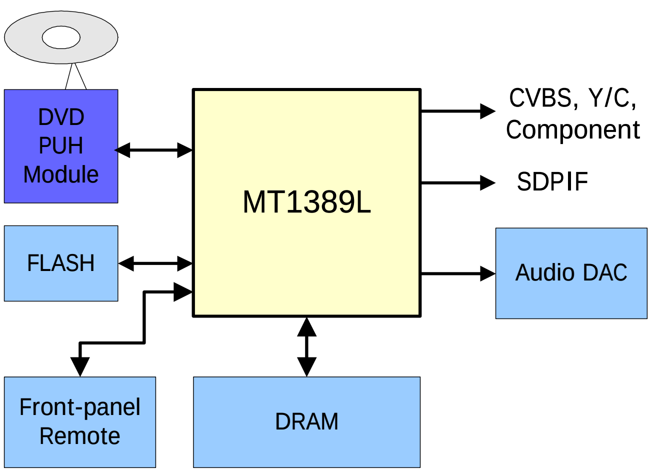
Progressive-Scan DVD Player SOC

Specifications are subject to change without notice

MediaTek MT1389 is a DVD player system-on-chip (SOC) which incorporates advanced features like high quality TV encoder and state-of-art de-interlace processing. The MT1389 enables consumer electronics manufacturers to build high quality, cost-effective DVD players, portable DVD players or any other home entertainment audio/video devices.

Based on MediaTek's world-leading DVD player SOC architecture, the MT1389 is the 3rd generation of the DVD player SOC. It integrates the MediaTek 2nd generation front-end analog RF amplifier and the Servo/MPEG AV decoder.

The progressive scan of the MT1389 utilized a proprietary advanced motion-adaptive de-interlace algorithm to achieve the best movie/video playback. It can easily detect 3:2/2:2 pull down source and restore the correct original pictures. It also supports a patent-pending edge-preserving algorithm to remove the saw-tooth effect.



DVD Player System Diagram Using MT1389

Key Features

- RF/Servo/MPEG Integration
- High Performance Audio Processor
- Motion-Adaptive, Edge-Preserving De-interlace
- 108MHz/12-bit, 6 CH TV Encoder

Applications

- Standard DVD Players
- Portable DVD Players

General Feature List

- Super Integration DVD player single chip
  - High performance analog RF amplifier
  - Servo controller and data channel processing
  - MPEG-1/MPEG-2/JPEG video
  - Dolby AC-3/DTS/DVD-Audio
  - Unified memory architecture
  - Versatile video scaling & quality enhancement
  - OSD & Sub-picture
  - 2-D graphic engine
  - Built-in clock generator
  - Built-in high quality TV encoder
  - Built-in progressive video processor
  - Audio effect post-processor
  - Audio input port

- High Performance Analog RF Amplifier
  - Programmable fc
  - Dual automatic laser power control
  - Defect and blank detection
  - RF level signal generator

- Speed Performance on Servo/Channel Decoding
  - DVD-ROM up to 4XS
  - CD-ROM up to 24XS

- Channel Data Processor
  - Digital data slicer for small jitter capability
  - Built-in high performance data PLL for channel data demodulation
  - EFM/EFM+ data demodulation
  - Enhanced channel data frame sync protection & DVD-ROM sector sync protection

- Servo Control and Spindle Motor Control
  - Programmable frequency error gain and phase error gain of spindle PLL to control spindle motor on CLV and CAV mode
  - Built-in ADCs and DACs for digital servo control
  - Provide 2 general PWM
  - Tray control can be PWM output or digital output

- Embedded Micro controller
  - Built-in 8032 micro controller
  - Built-in internal 373 and 8-bit programmable lower address port
  - 1024-bytes on-chip RAM
  - Up to 4M bytes FLASH-programming interface
  - Supports 5/3.3-Volt. FLASH interface
  - Supports power-down mode
  - Supports additional serial port

- DVD-ROM/CD-ROM Decoding Logic
  - High-speed ECC logic capable of correcting one error per each P-codeword or Q-codeword
  - Automatic sector Mode and Form detection
  - Automatic sector Header verification
  - Decoder Error Notification Interrupt that signals various decoder errors
  - Provide error correction acceleration

- Buffer Memory Controller
  - Supports 16Mb/32Mb/64Mb/128Mb SDRAM
  - Supports 16-bit SDRAM data bus
  - Provide the self-refresh mode SDRAM
  - Block-based sector addressing
  - Support 3.3 Volt. DRAM Interface

- Video Decode
  - Decodes MPEG1 video and MPEG2 main level, main profile video (720/480 and 720x576)
  - Smooth digest view function with I, P and B picture decoding
  - Baseline, extended-sequential and progressive JPEG image decoding
  - Support CD-G titles

- Video/OSD/SPU/HLI Processor
  - Arbitrary ratio vertical/horizontal scaling of video, from 0.25X to 256X
  - 65535/256/16/4/2-color bitmap format OSD,
  - 256/16 color RLC format OSD
  - Automatic scrolling of OSD image
  - Slide show transition as DVD-Audio Specification

- 2-D Graphic Engine
  - Support decode Text and Bitmap
  - Support line, rectangle and gradient fill
  - Support bitblt
  - Chroma key copy operation
  - Clip mask

- Audio Effect Processing
  - Dolby Digital (AC-3)/EX decoding
  - DTS/DTS-ES decoding
  - MLP decoding for DVD-Audio
  - MPEG-1 layer 1/layer 2 audio decoding
  - MPEG-2 layer1/layer2 2-channel audio
  - High Definition Compatible Digital (HDCD)
  - Windows Media Audio (WMA)
  - Advanced Audio Coding (AAC)
  - Dolby ProLogic II
  - Concurrent multi-channel and downmix out
  - IEC 60958/61937 output
    - PCM / bit stream / mute mode
    - Custom IEC latency up to 2 frames
  - Pink noise and white noise generator
  - Karaoke functions
    - Microphone echo
    - Microphone tone control
    - Vocal mute/vocal assistant
    - Key shift up to +/- 8 keys
    - Chorus/Flanger/Harmony/Reverb
  - Channel equalizer
  - 3D surround processing include virtual surround and speaker separation

- TV Encoder
  - Six 108MHz/12bit DACs
  - Support NTSC, PAL-BDGHINM, PAL-60
  - Support 525p, 625p progressive TV format
  - Automatically turn off unconnected channels
  - Support PC monitor (VGA)
  - Support Macrovision 7.1 L1, Macrovision 525P and 625P
  - CGMS-A/WSS
  - Closed Caption

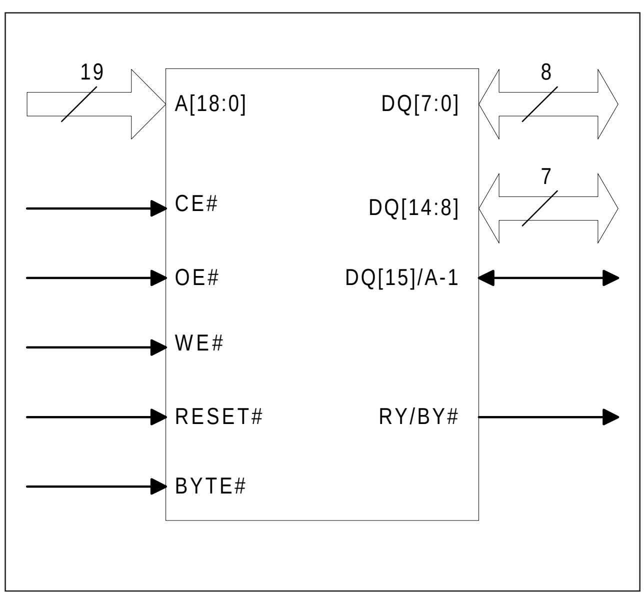
- Progressive Output
  - Automatic detect film or video source
  - 3:2 pull down source detection
  - Advanced Motion adaptive de-interlace
  - Edge Preserving
  - Minimum external memory requirement

- Audio Input
  - Line-in/SPDIF-in for versatile audio processing

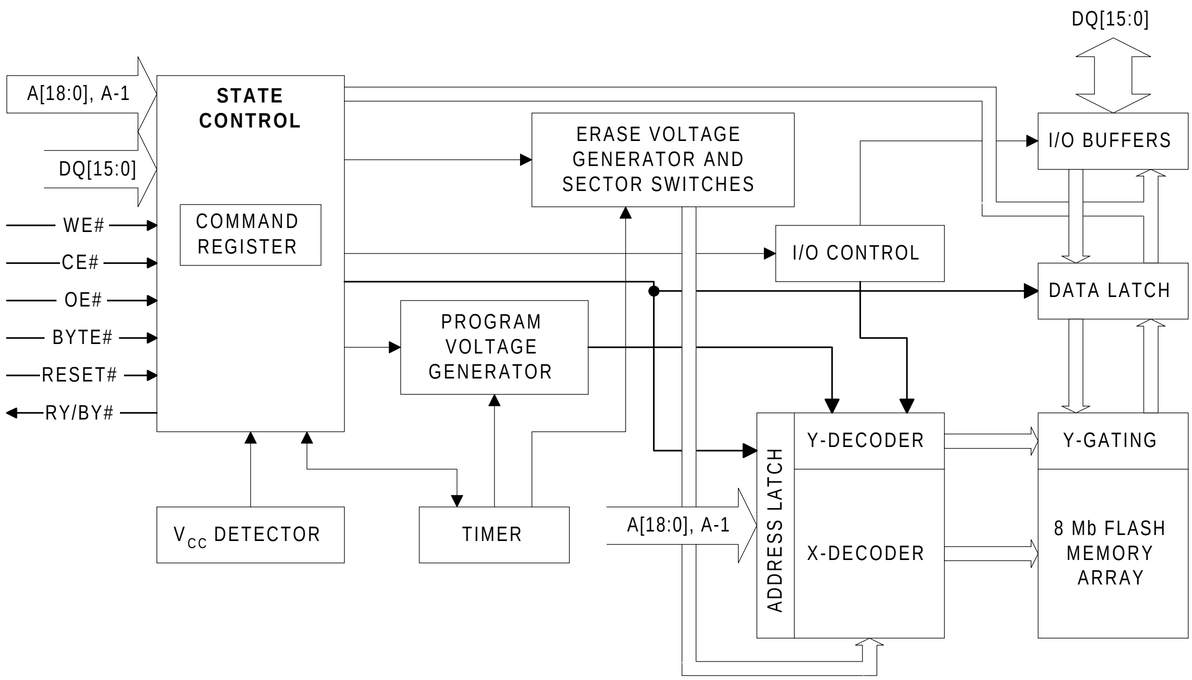
- Outline
  - 256-pin LQFP package
  - 3.3/1.8-Volt. Dual operating voltages

KEY FEATURES

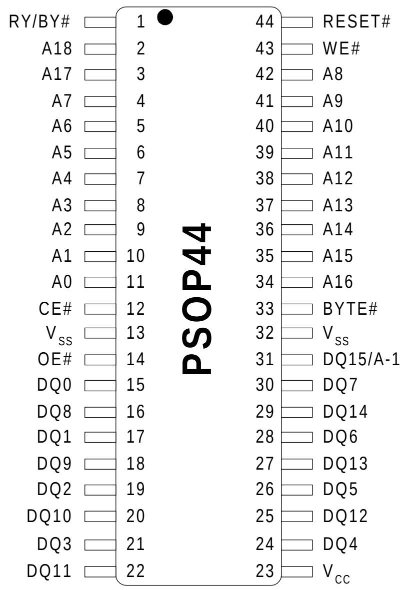
- **5 Volt Read, Program, and Erase**
  – Minimizes system-level power requirements
- **High Performance**
  – Access times as fast as 55 ns
- **Low Power Consumption**
  – 20 mA typical active read current in byte mode, 28 mA typical in word mode
  – 35 mA typical program/erase current
  – 5 µA maximum CMOS standby current
- **Compatible with JEDEC Standards**
  – Package, pinout and command-set compatible with the single-supply Flash device standard
  – Provides superior inadvertent write protection
- **Sector Erase Architecture**
  – Boot sector architecture with top and bottom boot block options available
  – One 16 Kbyte, two 8 Kbyte, one 32 Kbyte and fifteen 64 Kbyte sectors in byte mode
  – One 8 Kword, two 4 Kword, one 16 Kword and fifteen 32 Kword sectors in word mode
  – A command can erase any combination of sectors
  – Supports full chip erase
- **Erase Suspend/Resume**
  – Temporarily suspends a sector erase operation to allow data to be read from, or programmed into, any sector not being erased
- **Sector Protection**
  – Any combination of sectors may be locked to prevent program or erase operations within those sectors
- **Temporary Sector Unprotect**
  – Allows changes in locked sectors (requires high voltage on RESET# pin)
- **Internal Erase Algorithm**
  – Automatically erases a sector, any combination of sectors, or the entire chip
- **Internal Programming Algorithm**
  – Automatically programs and verifies data at a specified address
- **Fast Program and Erase Times**
  – Byte programming time: 7 µs typical
  – Sector erase time: 1.0 sec typical
  – Chip erase time: 19 sec typical
- **Data# Polling and Toggle Status Bits**
  – Provide software confirmation of completion of program or erase operations
- **Ready/Busy# Output (RY/BY#)**
  – Provides hardware confirmation of completion of program and erase operations
- **Minimum 100,000 Program/Erase Cycles**
- **Space Efficient Packaging**
  – Available in industry-standard 44-pin PSOP and 48-pin TSOP and reverse TSOP packages

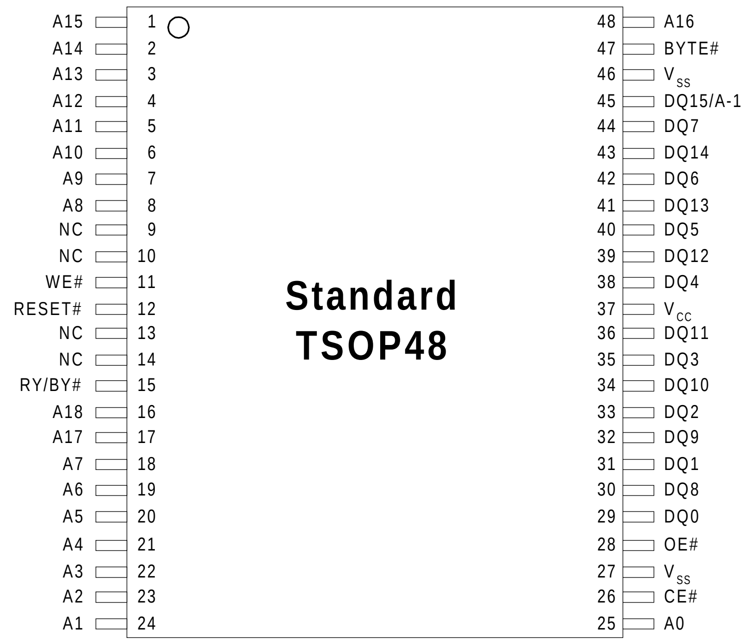


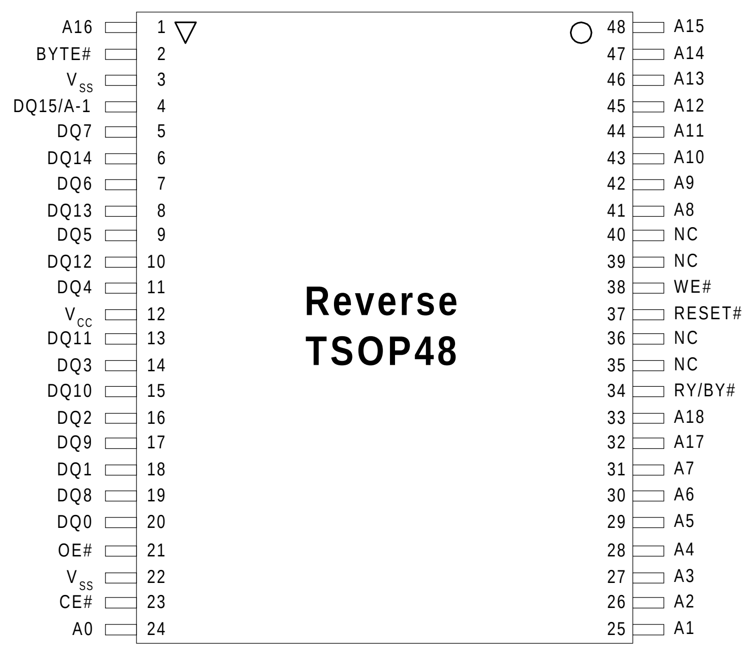
BLOCK DIAGRAM



PIN CONFIGURATIONS







8.4 U203 SDRAM-HY57V1610D

DESCRIPTION

THE Hynix HY57V161610D is a 16,777,216-bits CMOS Synchronous DRAM, ideally suited for the Mobile applications which require low power consumption and industrial temperature range. HY57V161610D is organized as 2banks of 524,288x16.

HY57V161610D is offering fully synchronous operation referenced to a positive edge clock. All inputs and outputs are synchronized with the rising edge of the clock input. The data paths are internally pipelined to achieve very high band-width. All input and output voltage levels are compatible with LVTTL.

Programmable options include the length of pipeline (Read latency of 1,2 or 3), the number of consecutive read or write cycles initiated by a single control command (Burst length of 1,2,4,8 or full page), and the burst count sequence(sequential or interleave). A burst of read or write cycles in progress can be terminated by a burst terminate command or can be interrupted and replaced by a new burst read or write command on any cycle. (This pipeline design is not restricted by a `2N` rule.)

FEATURES

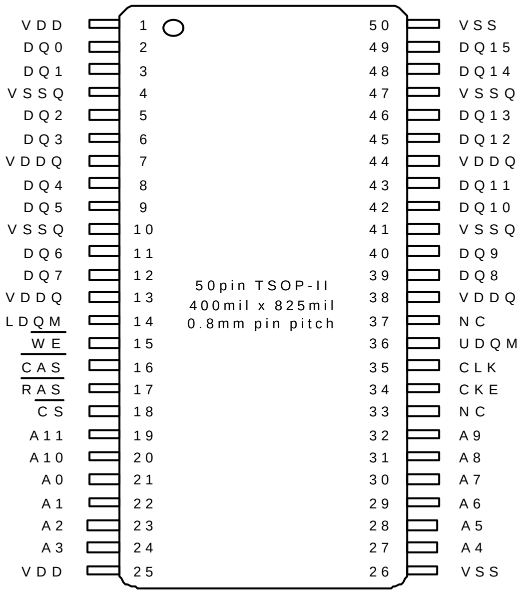
- Single 3.0V to 3.6V power supply Note1)
- All device pins are compatible with LVTTL interface
- JEDEC standard 400mil 50pin TSOP-II with 0.8mm of pin pitch
- All inputs and outputs referenced to positive edge of system clock
- Data mask function by UDQM/LDQM
- Internal two banks operation
- Auto refresh and self refresh
- 4096 refresh cycles / 64ms
- Programmable Burst Length and Burst Type
  - 1, 2, 4, 8 and Full Page for Sequence Burst
  - 1, 2, 4 and 8 for Interleave Burst
- Programmable $\overline{CAS}$ Latency ; 1, 2, 3 Clocks

ORDERING INFORMATION

Part No.	Clock Frequency	Organization	Interface	Package
HY57V161610DTC-55I	183MHz	2Banks x 512Kbits x 16	LVTTL	400mil 50pin TSOP II
HY57V161610DTC-6I	166MHz			
HY57V161610DTC-7I	143MHz			
HY57V161610DTC-10I	100MHz			

Rev. 0.2/Aug.01

PIN CONFIGURATION

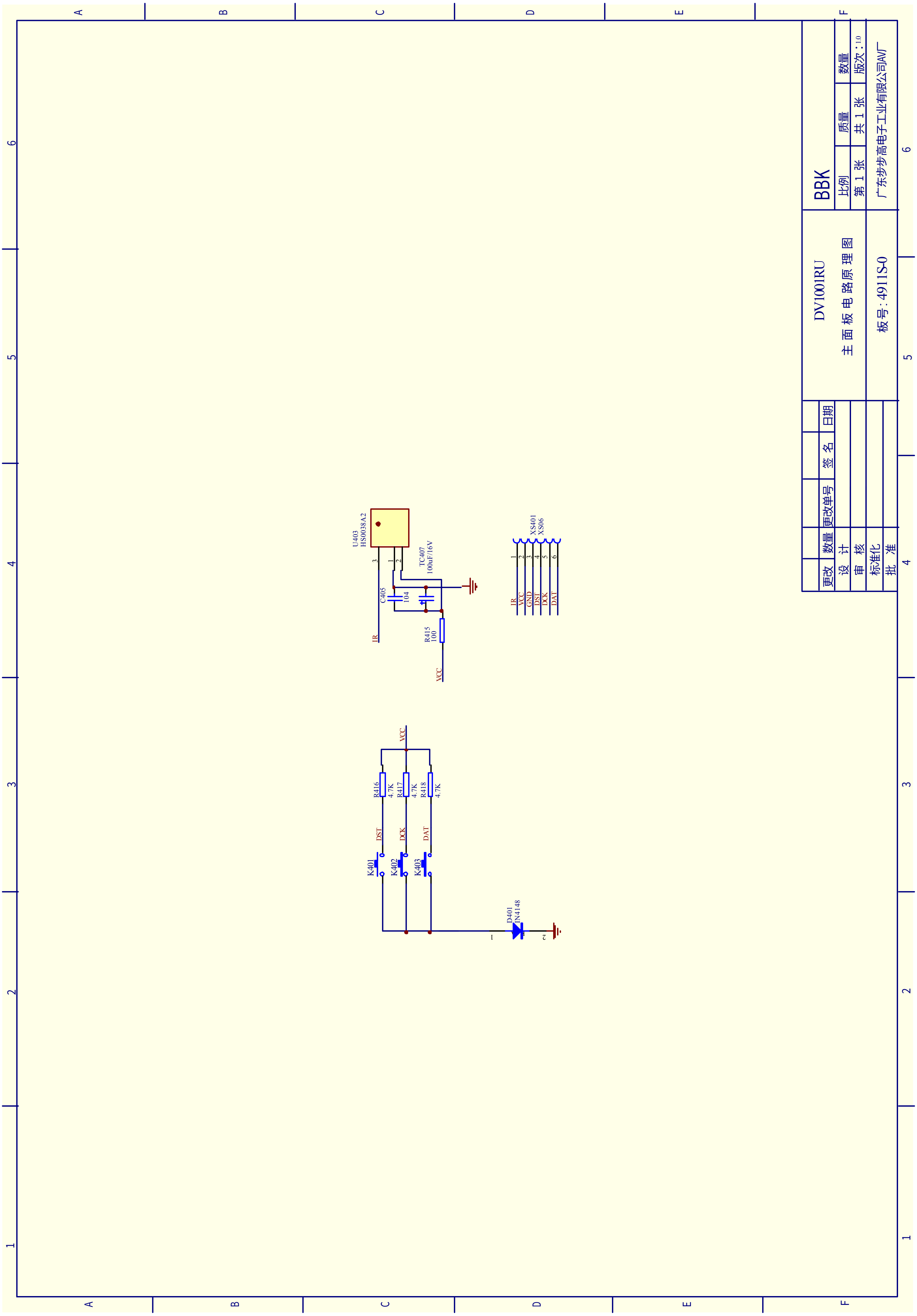


PIN DESCRIPTION

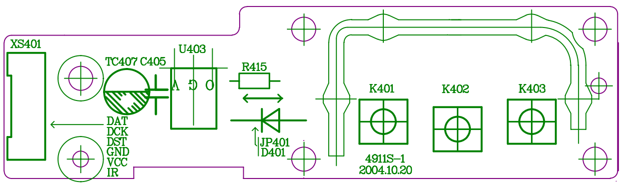
PIN	PIN NAME	DESCRIPTION
CLK	Clock	The system clock input. All other inputs are referenced to the SDRAM on the rising edge of CLK.
CKE	Clock Enable	Controls internal clock signal and when deactivated, the SDRAM will be one of the states among power down, suspend or self refresh.
$\overline{CS}$	Chip Select	Command input enable or mask except CLK, CKE and DQM
BA	Bank Address	Select either one of banks during both $\overline{RAS}$ and $\overline{CAS}$ activity.
A0 ~ A10	Address	Row Address : RA0 ~ RA10, Column Address : CA0 ~ CA7 Auto-precharge flag : A10
$\overline{RAS}$, $\overline{CAS}$, $\overline{WE}$	Row Address Strobe, Column Address Strobe, Write Enable	$\overline{RAS}$, $\overline{CAS}$ and $\overline{WE}$ define the operation. Refer function truth table for details
LDQM, UDQM	Data Input/Output Mask	DQM control output buffer in read mode and mask input data in write mode
DQ0 ~ DQ15	Data Input/Output	Multiplexed data input / output pin
VDD/VSS	Power Supply/Ground	Power supply for internal circuit and input buffer
VDDQ/VSSQ	Data Output Power/Ground	Power supply for DQ
NC	No Connection	No connection

9. SCHEMATIC & PCB WIRING DIAGRAM

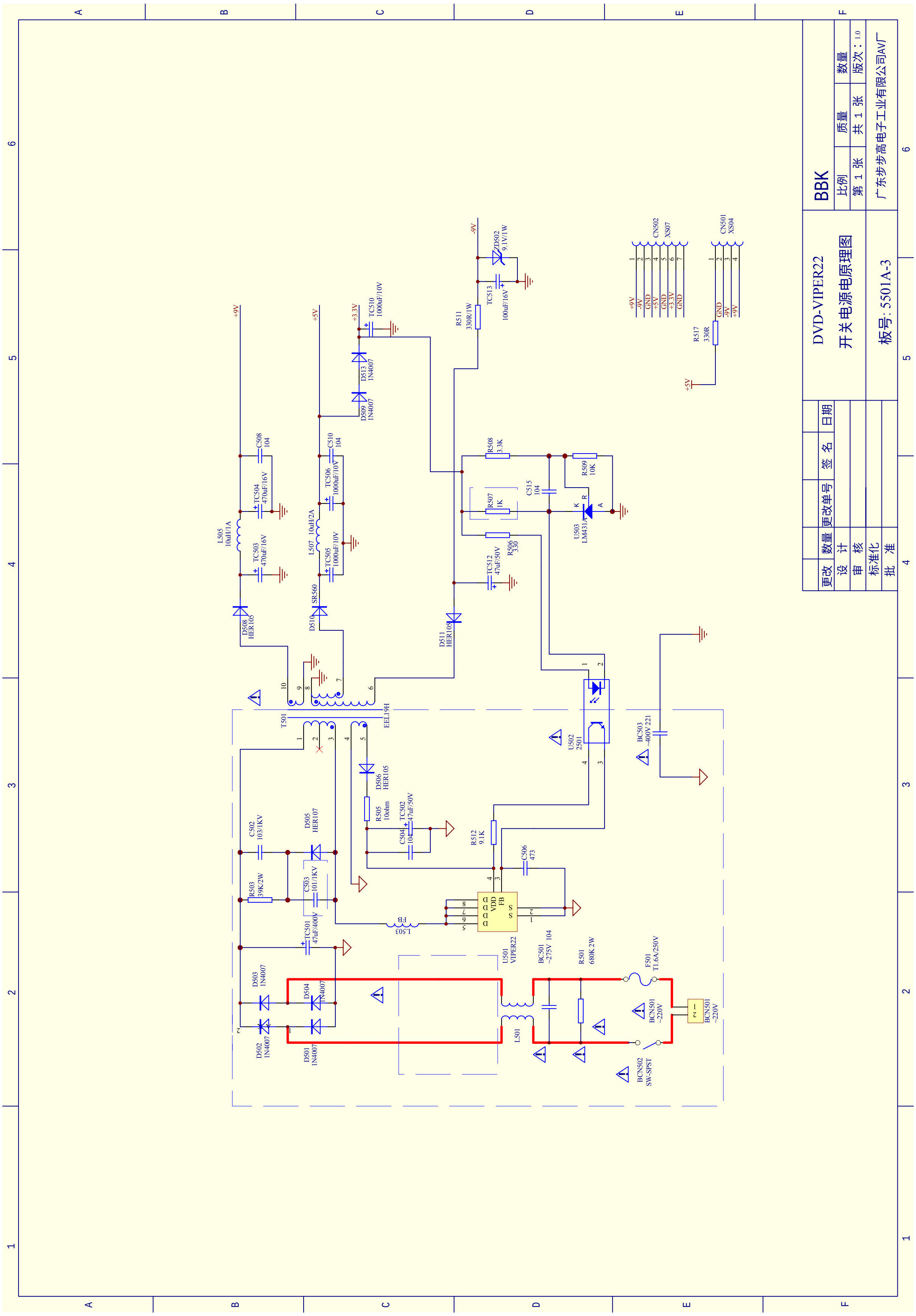
FRONT SCHEMATIC DIAGRAM



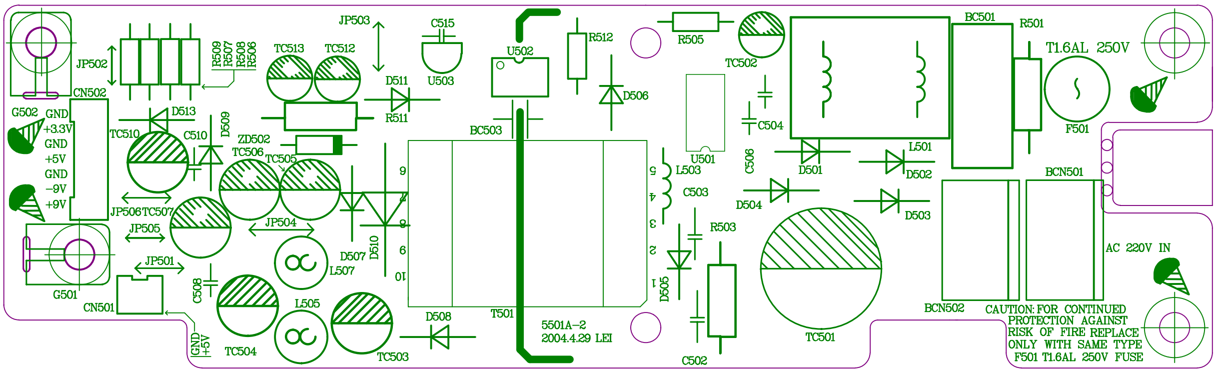
FRONT SCHEMATIC DIAGRAM



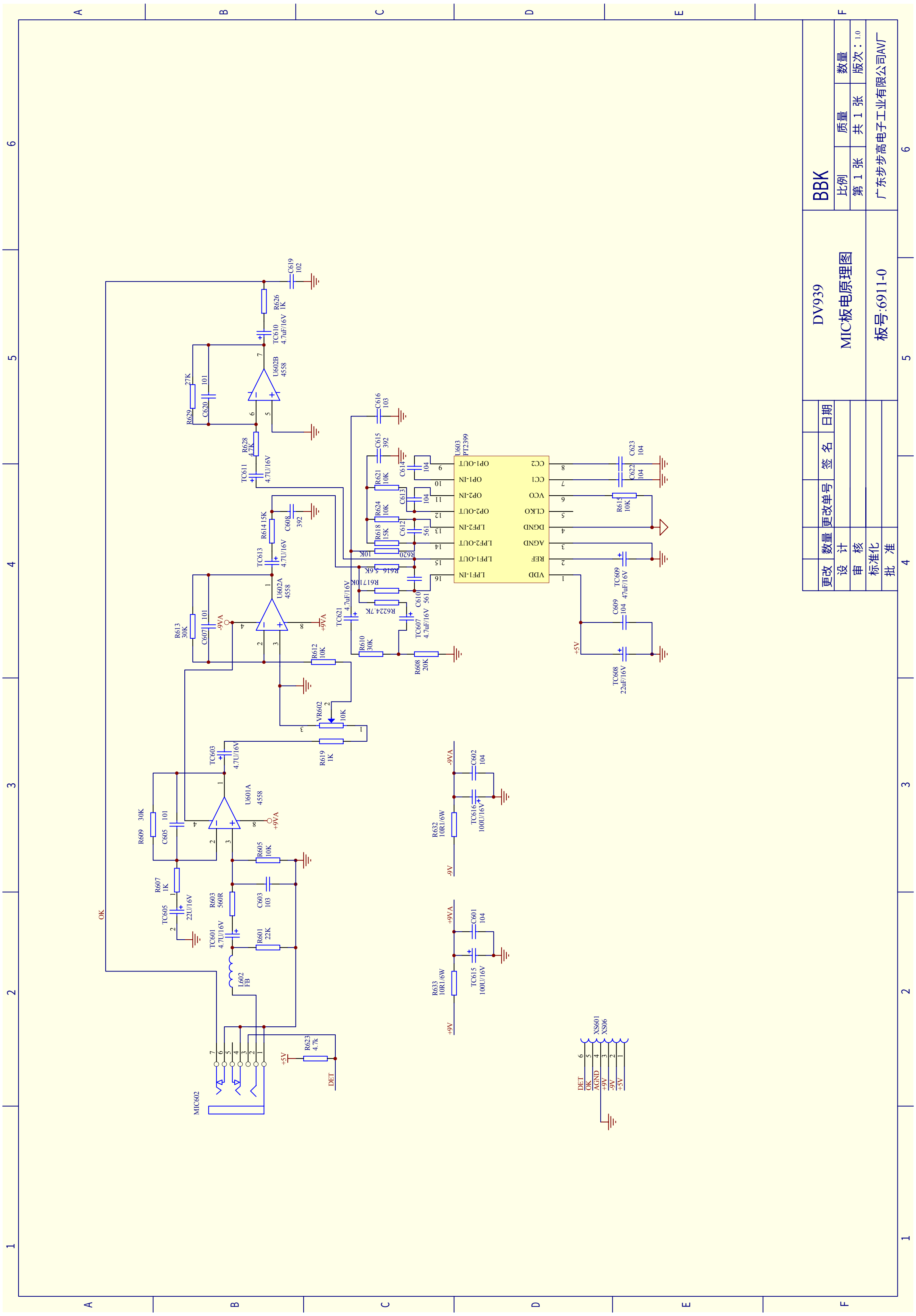
POWER SCHEMATIC DIAGRAM



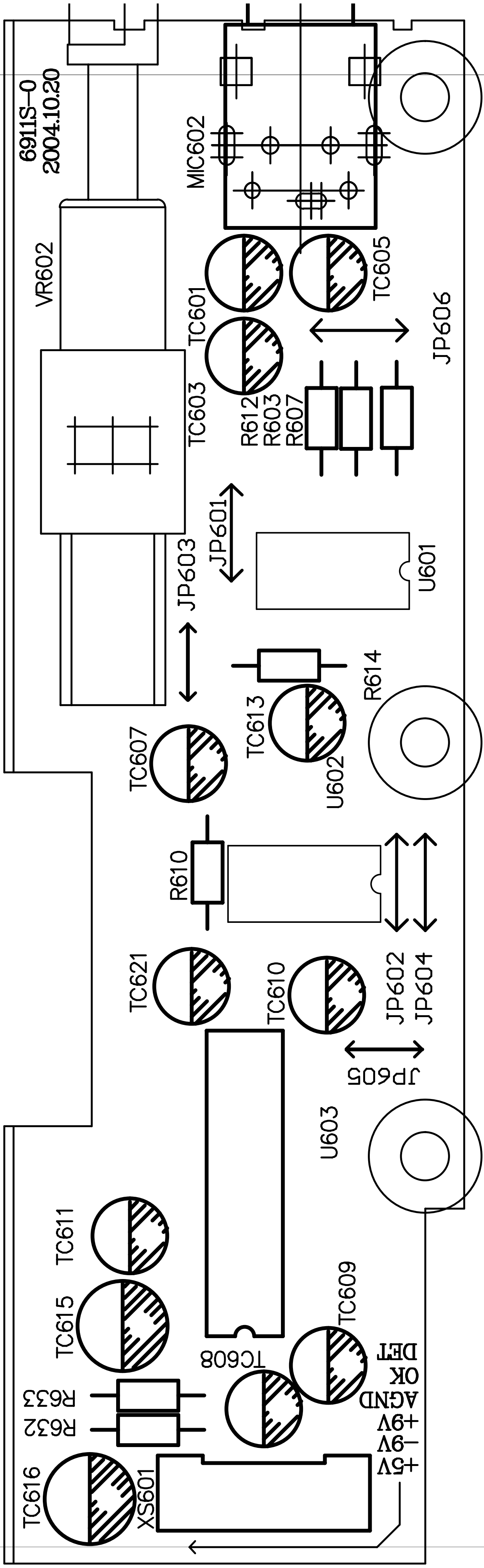
POWER BOARD SCHEMATIC DIAGRAM



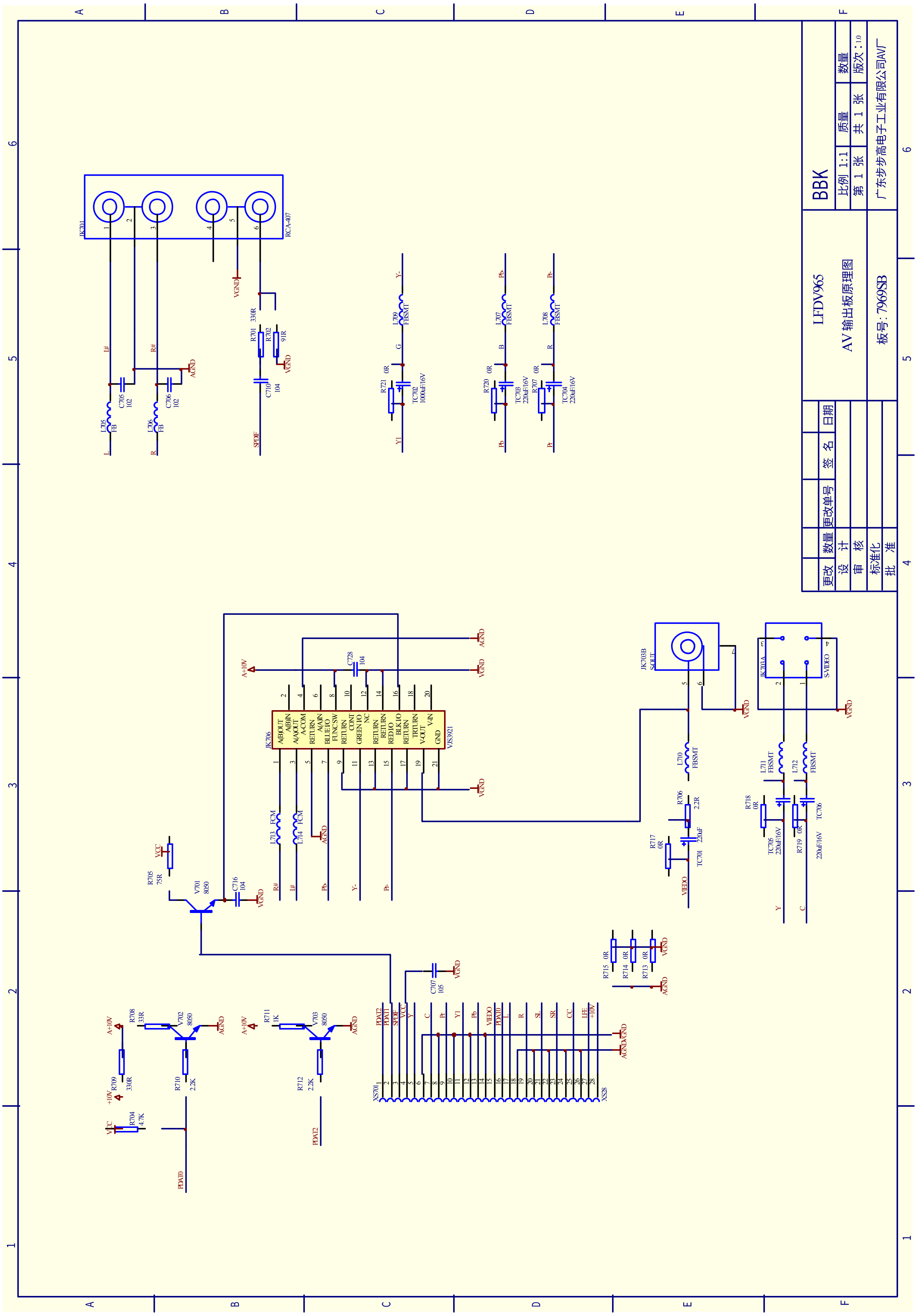
OK BOARD SCHEMATIC DIAGRAM



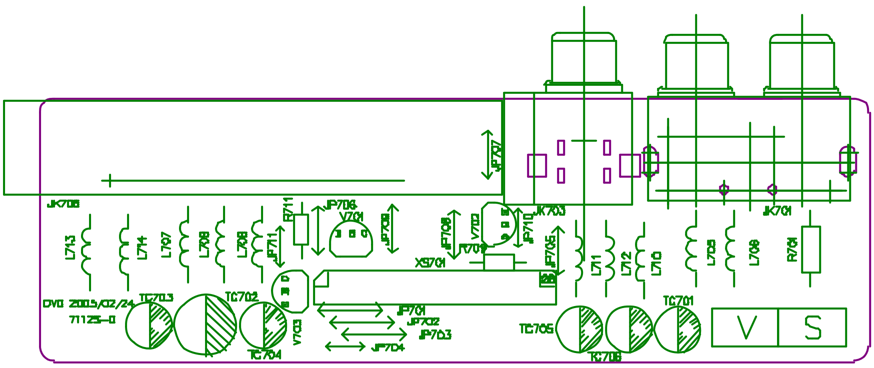
OK BOARD SCHEMATIC DIAGRAMDIAGRAM



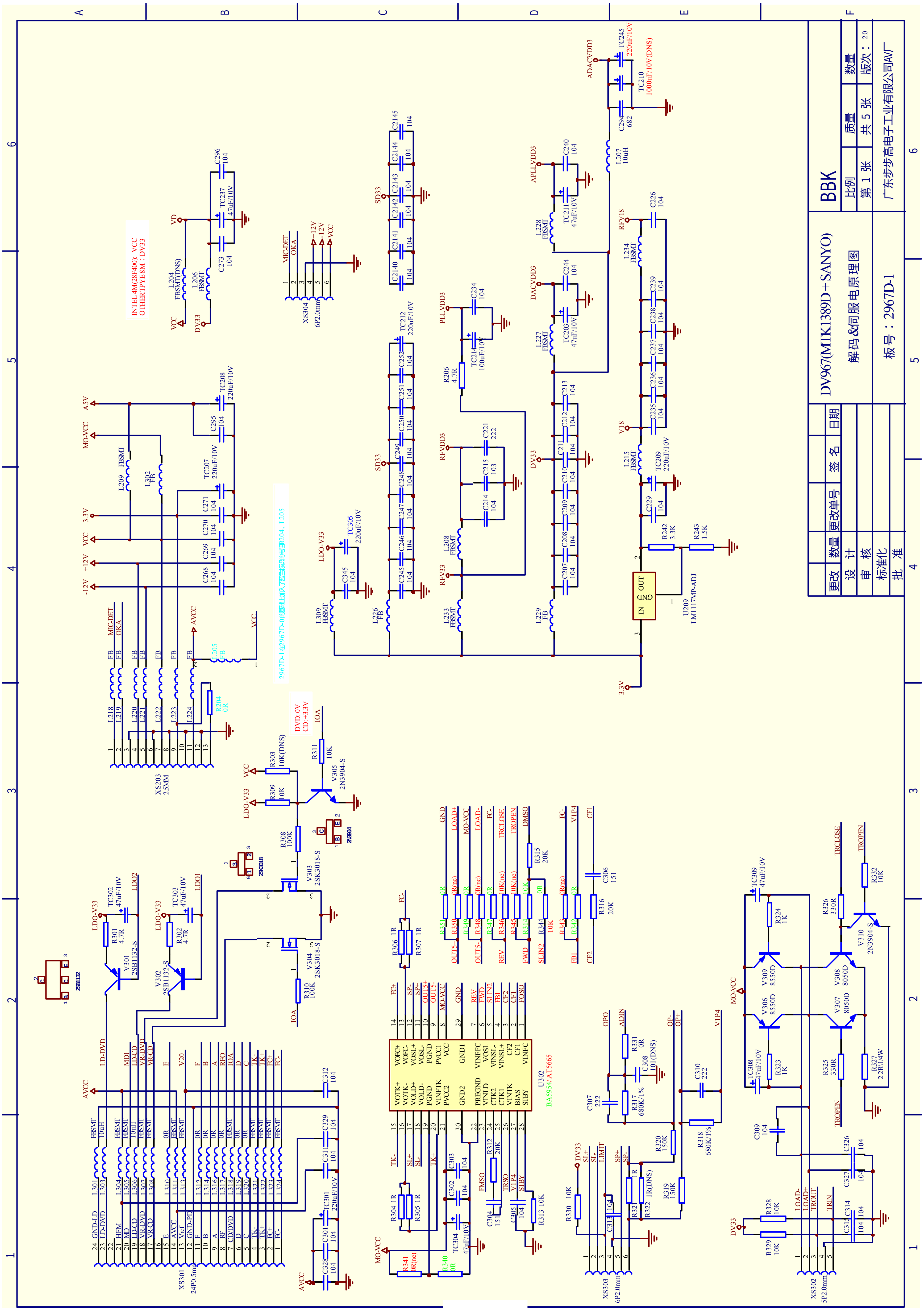
OUTPUT BOARD SCHEMATIC

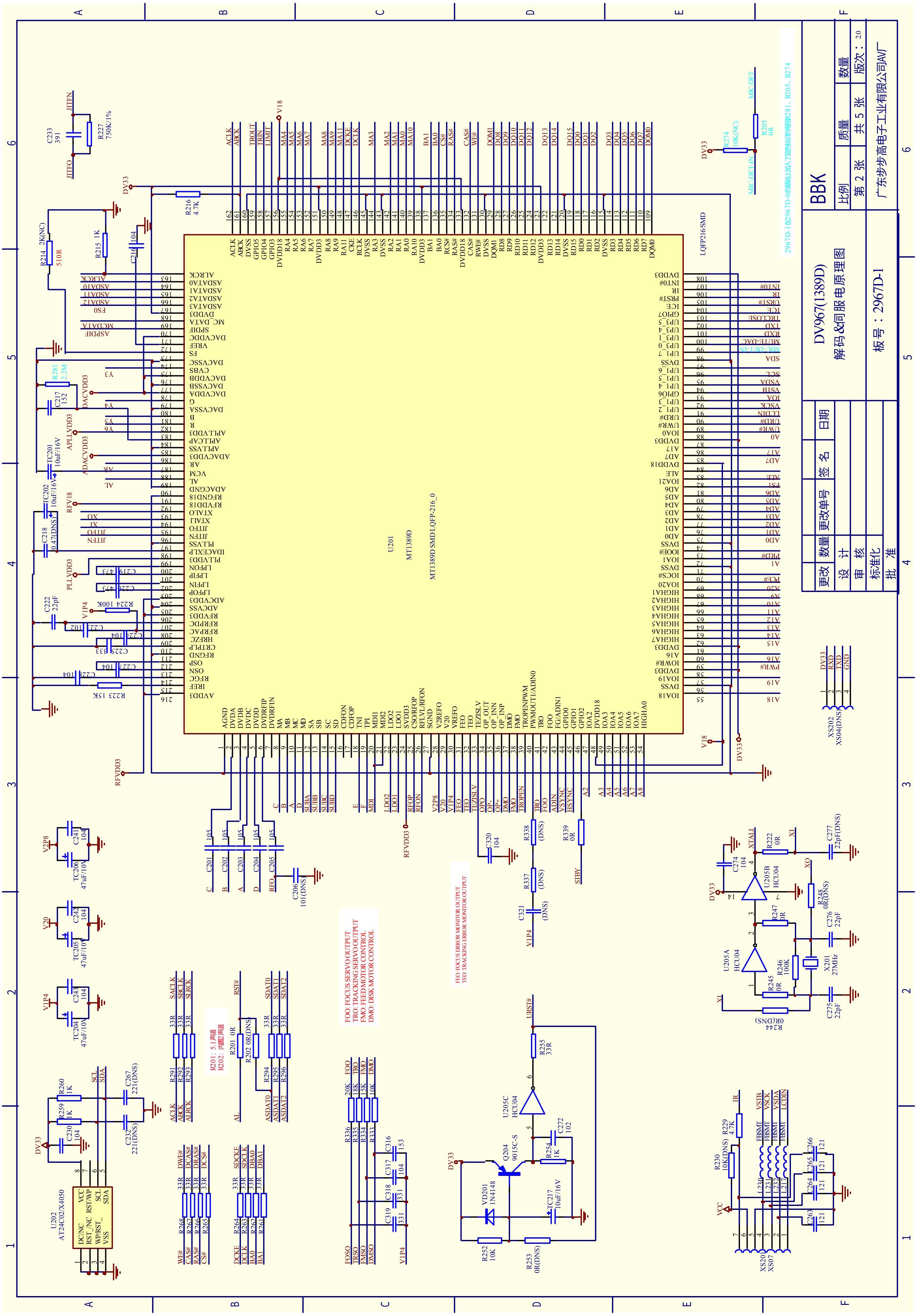


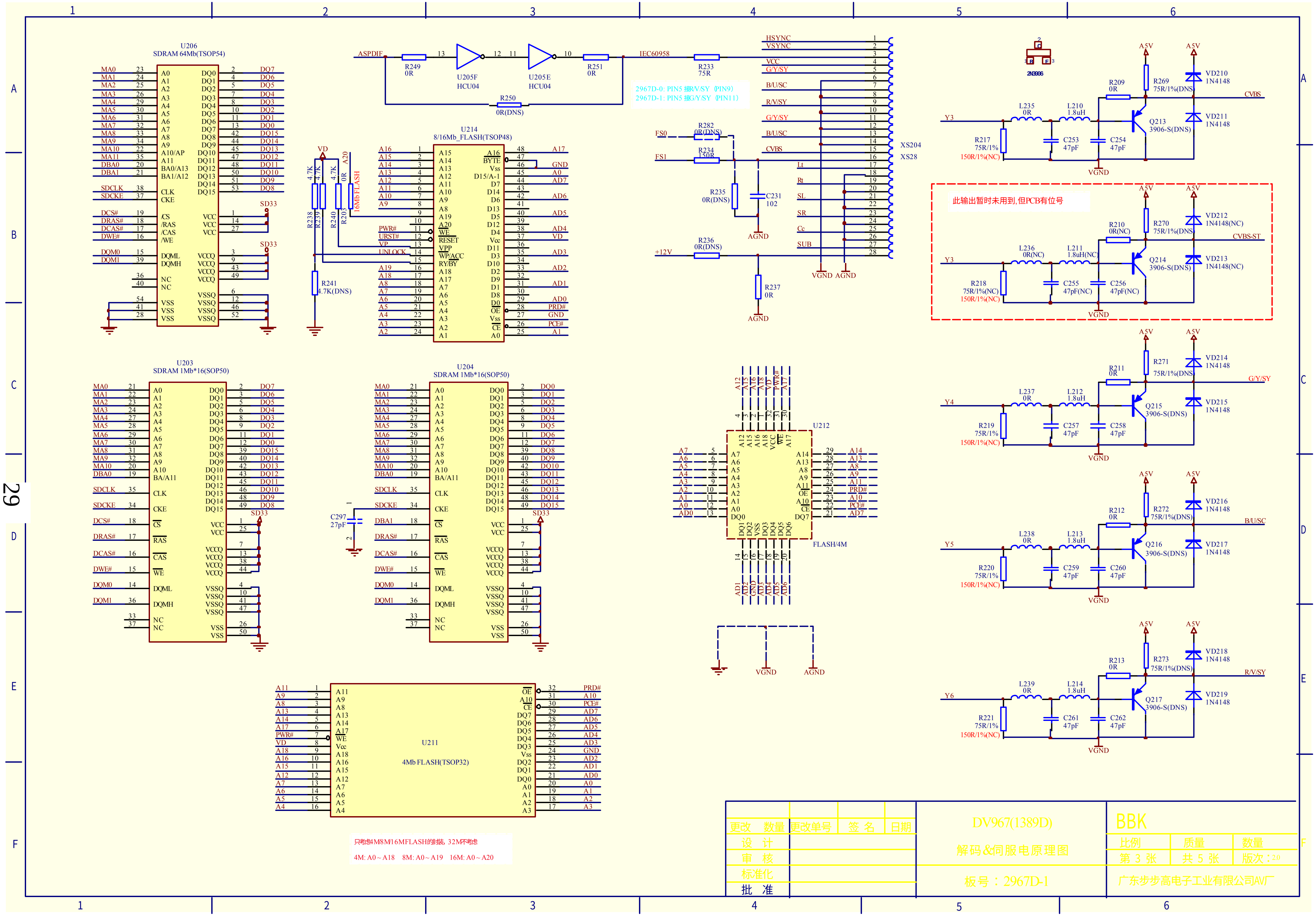
OUTPUT BOARD SCHEMATIC

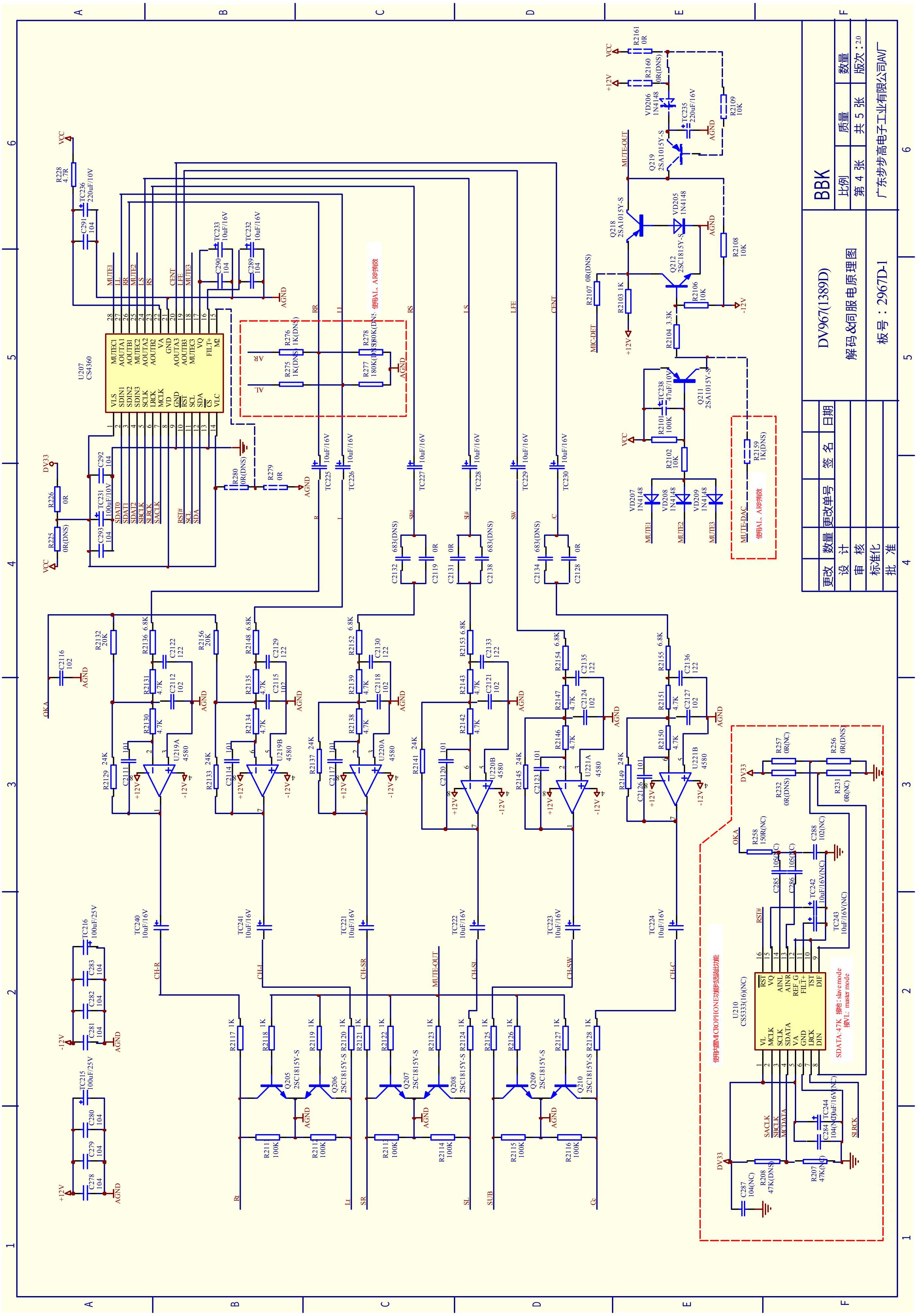


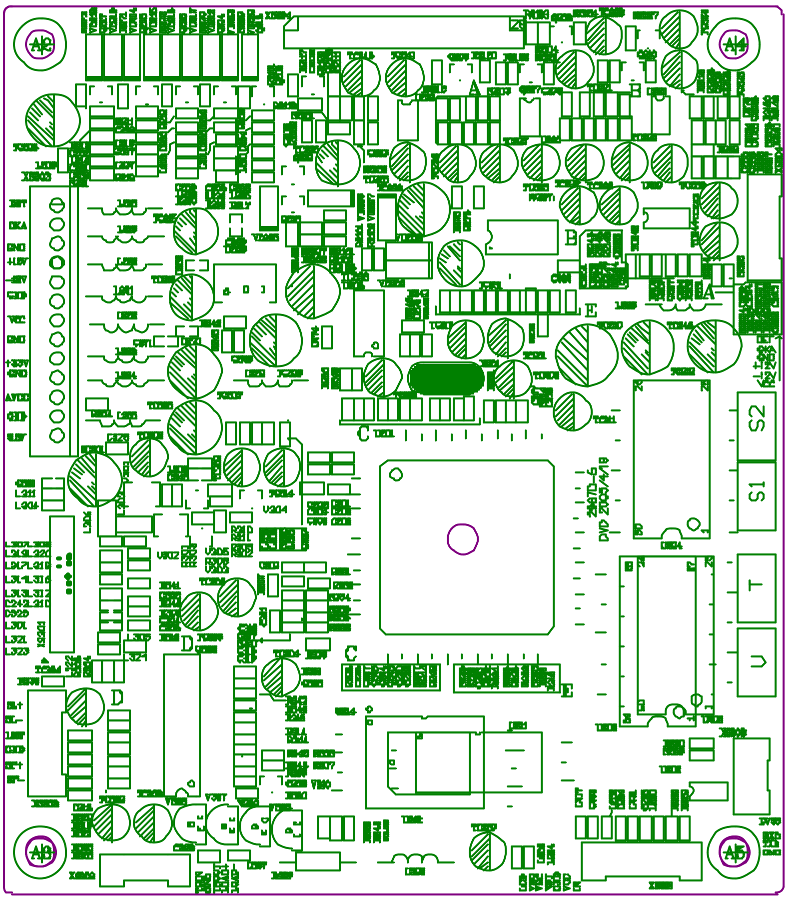
MIAN SCHEMATIC DIAGRAM




BBK
DV967(1389D)
解码&伺服原理图
板号：2967D-1
广东步步高电子工业有限公司AV厂
比例
质量
数量
第 2 张
共 5 张
版次：2.0
更改
数量
更改单号
签 名
日期
设 计
审 核
标准化
批 准
U201
MT1389D
MT1389D SMD LQFP-216_0


此输出暂时未用到,但PCB有位号
只考虑4M8M16MFLASH的兼容，32M不考虑
4M: A0~A18　8M: A0~A19　16M: A0~A20
2967D-0: PIN5 接R/Y/SY (PIN9)
2967D-1: PIN5 接G/Y/SY (PIN11)
DV967(1389D)
解码&伺服电原理图
板号：2967D-1
BBK
比例　质量　数量
第 3 张　共 5 张　版次：20
广东步步高电子工业有限公司AV厂
更改　数量　更改单号　签 名　日期
设 计
审 核
标准化
批 准


BBK
DV967(1389D)
解码&伺服电原理图
板号：2967D-1
比例
质量
数量
第 4 张
共 5 张
版次：2.0
广东步步高电子工业有限公司AV厂
更改
数量
更改单号
签 名
日期
设 计
审 核
标准化
批 准
U207 CS4360
U210 CS5333(16)(NC)



DV113S MATERIAL LIST

1. POWER BOARD

MATERIAL CODE	MATERIAL NAME	SPECIFICATIONS	UNIT	QUANTITY	LOCATION
294	CARBON FILM RESISTOR	1/4W10K±5% SHAPED 10	PCS	1	R507
0010064	METAL FILM RESISTOR	1/4W10K±1% SHAPED 10	PCS	1	R509
0000461	CARBON FILM RESISTOR	1/4W9.1K±5% SHAPED 10	PCS	1	R512
0010256	METAL FILM RESISTOR	1/4W3.6K±1% SHAPED 10	PCS	1	R508
0000431	CARBON FILM RESISTOR	1/4W75Ω±5% SHAPED 10	PCS	1	R505
10135	METAL OXIDE FILM RESISTOR	2W39K±5% SHAPED FLAT 15×9	PCS	1	R503
0000278	CARBON FILM RESISTOR	1/4W330Ω±5% SHAPED 10	PCS	1	R517
0000380	CARBON FILM RESISTOR	1/4W510Ω±5% SHAPED 10	PCS	1	R506
0070001	HIGH VOLTAGE RESISTOR	1/2W680K±5%	PCS	1	R501
0580054	VOLTAGE REGULATOR DIODE	9.1V 1W	PCS	1	ZD502
10250	METAL OXIDE FILM RESISTOR	1W22Ω±5% SHAPED R 15×8	PCS	1	R511
0570005	DIODE	1N4007	PCS	4	D501~D504
0570011	DIODE	RL202	PCS	2	D509,D513
0200138	PORCELAIN CAPACITOR	50V 104 ±20% 5mm	PCS	4	C504,C508,C510,C515
0200224	PORCELAIN CAPACITOR	1000V 103 +80%-20% 7.5mm	PCS	1	C502
0200223	PORCELAIN CAPACITOR	1000V 101 +80%-20% 7.5mm	PCS	1	C503
0200228	PORCELAIN CAPACITOR	1000V 101 ±10% 7.5mm	PCS	1	C503
210191	TERYLENE CAPACITOR	50V 222 ±10% 5mm	PCS	1	C506
0260559	CD	CD11T 50V47U±20%6×12 2.5	PCS	2	TC502,TC512
0260563	CD	KM 400V47U±20%18×20 7.5	PCS	1	TC501
260557	CD	CD11T 16V100U±20%6×12 2.5	PCS	1	TC513
0260594	CD	CD11T 25V220U±20%8×12 3.5	PCS	2	TC503,TC504
0260560	CD	CD11T 10V1000U±20%8×16 3.5	PCS	3	TC505,TC506,TC510
0390057	MAGNETIC BEADS INDUCTOR	RH354708	PCS	1	L503
0410010	CHOKE COIL	VERTICAL 10UH 1A 5mm	PCS	1	L505
0410011	CHOKE COIL	VERTICAL 10UH 2A 5mm	PCS	1	L507
1080011	PHOTOELECTRIC COUPLER	HS817	PCS	1	U502
0570013	DIODE	HER105	PCS	3	D506,D508,D511
570014	DIODE	HER107	PCS	1	D505
0680010	SCHOTTKY DIODE	SR560 DO-27	PCS	1	D510
0880553	IC	LM431ACZ TO-92	PCS	1	U503
0880581	IC	TL431C TO-226AA(LP)	PCS	1	U503
0880800	IC	431L TO-92	PCS	1	U503
0210066	TERYLENE CAPACITOR	275V 104 ±20% 15mm	PCS	1	BC501
0210070	TERYLENE CAPACITOR	275V 104 ±10% 15mm	PCS	1	BC501
200267	CERAMIC CAPACITOR	CT81 250VAC221±20% 10mm	PCS	1	BC503
0200268	CERAMIC CAPACITOR	CT81 250VAC221±10% 10mm	PCS	1	BC503
0460394	SWITCHING POWER TRANSFORMER	BCK-19-0179	PCS	1	T501
1000004	POWER GRID FILTER	UT-20 40mH ±20% 10×13	PCS	1	L501
1563407	PCB	5501A-4	PCS	1	
2100003	CONNECTION CORDS	Φ0.6 SHAPED 7.5mm	PCS	2	JP501,JP503
2100010	CONNECTION CORDS	Φ0.6 SHAPED 5mm	PCS	1	JP502
2300021	FUSE	T1.6AL 250V	PCS	1	F501
1940045	SOCKET	2P 8.0mm 2#	PCS	2	BCN501,BCN502
1940023	SOCKET	7P 2.0mm	PCS	1	CN502
1940027	SOCKET	2P 2.0mm	PCS	1	CN501
0881933	IC	VIPER22A DIP8	PCS	1	U501
3870115	GROUND CHIP OF POWER BOARD	AB903	PCS	2	G501,G502

2. MAIN PANEL

MATERIAL CODE	MATERIAL NAME	SPECIFICATIONS	UNIT	QUANTITY	LOCATION
5232805	SOFT SPONGE SPACER	6×6×2.5 DOUBLE-FACED HARD	PCS	1	1PC FOR IR SENSOR
9	CARBON FILM RESISTOR	1/6W100Ω±5%	PCS	1	R415
0090023	SMD RESISTOR	1/16W 10K ±5%	PCS	3	R416,R417,R418
0570006	DIODE	1N4148	PCS	1	D401
1340003	LIGHT TOUCH RESTORE SWITCH	HORIZONTAL 6×6×1	PCS	3	K401~K403
0200139	PORCELAIN CAPACITOR	50V 104 +80%-20% 5mm	PCS	1	C405
0260206	CD	CD11C 10V100U±20%5×7 2	PCS	1	TC407
2360002	IR SENSOR	HS0038B	PCS	1	U403

2100010	CONNECTION CORDS	Φ0.6 SHAPED 5mm	PCS	1	JP401
2121370	FLAT CABLE	6P170 2.0 2PLUG WITH L NEEDLE REVERSE	PCS	1	XS401
1563482	PCB	4911S-1	PCS	1	

3. AV BOARD

MATERIAL CODE	MATERIAL NAME	SPECIFICATIONS	UNIT	QUANTITY	LOCATION
362	CARBON FILM RESISTOR	1/4W220Ω±5% SHAPED 10	PCS	1	R701
0000123	CARBON FILM RESISTOR	1/6W330Ω±5% SHAPED 7.5	PCS	1	R709
0090005	SMD RESISTOR	1/16W 33Ω ±5% 0603	PCS	1	R708
0090181	SMD RESISTOR	1/16W 100Ω ±5% 0603	PCS	1	R702
0090002	SMD RESISTOR	1/16W 2.2Ω ±5% 0603	PCS	1	R706
0090019	SMD RESISTOR	1/16W 4.7K ±5% 0603	PCS	1	R704
0000129	CARBON FILM RESISTOR	1/6W1K±5% SHAPED 7.5	PCS	1	R711
0090017	SMD RESISTOR	1/16W 2.2K ±5% 0603	PCS	2	R710,R712
0090006	SMD RESISTOR	1/16W 75Ω ±5% 0603	PCS	1	R705
310066	SMD CAPACITOR	50V 102 ±10% 0603	PCS	2	C705,C706
0310207	SMD CAPACITOR	50V 104 ±20% X7R 0603	PCS	3	C707,C710,C716
0310543	SMD CAPACITOR	50V 104 ±10% X7R 0603	PCS	3	C707,C710,C716
0310222	SMD CAPACITOR	25V 104 ±20% X7R 0603	PCS	3	C707,C710,C716
0090001	SMD RESISTOR	1/16W 0Ω ±5% 0603	PCS	6	R717~R721,R707
780050	TRIODE	S8050D	PCS	3	V701~V703
390057	MAGNETIC BEADS INDUCTOR	RH354708	PCS	10	L705~L714
1910140	TERMINAL SOCKET	AV4-8.4-5G-5 BLACK	PCS	1	JK701
1910129	TERMINAL SOCKET	SA-001-012 BLACK IRON PIECE SCREEN-SHIELDED	PCS	1	JK703
1940140	CABLE SOCKET	14P 1.0mm STRAIGHT DUAL LINE PLUG	PCS	1	XS701
2100010	CONNECTION CORDS	Φ0.6 SHAPED 5mm	PCS	3	JP704,JP710,JP711
2100003	CONNECTION CORDS	Φ0.6 SHAPED 7.5mm	PCS	5	JP705~JP709
2100004	CONNECTION CORDS	Φ0.6 SHAPED 10mm	PCS	3	JP701~JP703
1860029	SCART SOCKET	SCART-01	PCS	1	JK706
1563648	PCB	7112S-0	PCS	1	

4. OKV BOARD

MATERIAL CODE	MATERIAL NAME	SPECIFICATIONS	UNIT	QUANTITY	LOCATION
0000126	CARBON FILM RESISTOR	1/6W560Ω±5% SHAPED 7.5	PCS	1	R603
0000129	CARBON FILM RESISTOR	1/6W1K±5% SHAPED 7.5	PCS	1	R607
90014	SMD RESISTOR	1/16W 1K ±5% 0603	PCS	2	R619,R626
0090026	SMD RESISTOR	1/16W 22K ±5% 0603	PCS	1	R601
0090019	SMD RESISTOR	1/16W 4.7K ±5% 0603	PCS	3	R622,R628,R623
0090020	SMD RESISTOR	1/16W 5.1K ±5% 0603	PCS	1	R616
0090023	SMD RESISTOR	1/16W 10K ±5% 0603	PCS	5	R605,R617,R620,R621,R624
137	CARBON FILM RESISTOR	1/6W10K±5% SHAPED 7.5	PCS	1	R612
0390057	MAGNETIC BEADS INDUCTOR	RH354708	PCS	1	L602
0000118	CARBON FILM RESISTOR	1/6W10Ω±5% SHAPED 7.5	PCS	2	R632,R633
0090024	SMD RESISTOR	1/16W 15K ±5% 0603	PCS	1	R618
0000338	CARBON FILM RESISTOR	1/6W15K±5% SHAPED 7.5	PCS	1	R614
90188	SMD RESISTOR	1/16W 18K ±5% 0603	PCS	1	R615
0000144	CARBON FILM RESISTOR	1/6W47K±5% SHAPED 7.5	PCS	1	R610
0090027	SMD RESISTOR	1/16W 27K ±5% 0603	PCS	1	R629
0090028	SMD RESISTOR	1/16W 33K ±5% 0603	PCS	2	R609,R613
0090018	SMD RESISTOR	1/16W 3.3K ±5% 0603	PCS	1	R608
0260127	CD	CD11 16V4.7U±20%5×11 2	PCS	7	TC601,TC603,TC607,TC610,TC611, TC613,TC621
260021	CD	CD11 16V22U±20%5×11 2	PCS	1	TC605
0260200	CD	CD11C 16V47U±20%5×7 2	PCS	2	TC608,TC609
0260040	CD	CD11 25V100U±20%6×12 2.5	PCS	2	TC615,TC616
0310047	SMD CAPACITOR	50V 101 ±5% NPO 0603	PCS	3	C605,C607,C620
0310066	SMD CAPACITOR	50V 102 ±10% 0603	PCS	3	C619,C625,C606
0310072	SMD CAPACITOR	50V 103 ±10% 0603	PCS	2	C603,C616
0310084	SMD CAPACITOR	50V 104 +80%-20% 0603	PCS	8	C602,C609,C613,C614,C622,C623,C601,C604
0310058	SMD CAPACITOR	25V 104 +80%-20% 0603	PCS	8	C602,C609,C613,C614,C622,C623,C601,C604
0310323	SMD CAPACITOR	50V 392 ±10% 0603	PCS	2	C615,C608

0310197	SMD CAPACITOR	50V 561 ±10% 0603	PCS	2	C610,C612
0390095	SMD MAGNETIC BEADS	FCM1608K-221T05	PCS	2	L601,L603
0880124	IC	NJM4558D DIP	PCS	2	U601,U602
2121509	FLAT CABLE	6P200 2.0 2PLUG WITH L NEEDLE REVERSE	PCS	1	XS601
2100010	CONNECTION CORDS	Φ0.6 SHAPED 5mm	PCS	2	JP603,JP605
2100003	CONNECTION CORDS	Φ0.6 SHAPED 7.5mm	PCS	5	JP601,JP602,JP604,JP606,JP607
1980048	MIC SOCKET	ST-403-070-100	PCS	1	MIC602
0160184	ROTATED POTENTIOMETER	WH09JTC1Z11-A10K-F30	PCS	1	VR602
1563776	PCB	6911S-1	PCS	1	
880230	IC	PT2399 DIP	PCS	1	U603

5. OKV BOARD

MATERIAL CODE	MATERIAL NAME	SPECIFICATIONS	UNIT	QUANTITY	LOCATION
0090001	SMD RESISTOR	1/16W 0Ω ±5% 0603	PCS	35	L235,L237~L239,L310,L312,L314,L316,L317,L319,L320,R201,R203,R209,R211~R213,R222,R226,R236,R245,R247,R249,R251,R279,R331,R339,R340,R342,R344,R347,R349,R351,R2161,R282
0090214	SMD RESISTOR	1/16W 2.2MΩ ±5% 0603	PCS	1	R281
0090272	SMD RESISTOR	1/16W1Ω±5% 0603	PCS	5	R304~R307,R321
0090106	SMD RESISTOR	1/16W 4.7Ω ±5% 0603	PCS	4	R206,R228,R301,R302
0090006	SMD RESISTOR	1/16W 75Ω ±5% 0603	PCS	5	R233,R217,R219~R221
0090005	SMD RESISTOR	1/16W 33Ω ±5% 0603	PCS	15	R255,R261~R268,R291~R296
0090009	SMD RESISTOR	1/16W 330Ω ±5% 0603	PCS	2	R325,R326
0090014	SMD RESISTOR	1/16W 1K ±5% 0603	PCS	12	R215,R254,R259,R260,R323,R324,R2103,R2117~R2120,R205
0090016	SMD RESISTOR	1/16W 1.5K ±5% 0603	PCS	1	R243
0090249	SMD RESISTOR	1/16W 510Ω ±5% 0603	PCS	1	R214
0090018	SMD RESISTOR	1/16W 3.3K ±5% 0603	PCS	2	R242,R2104
0090019	SMD RESISTOR	1/16W 4.7K ±5% 0603	PCS	8	R216,R238~R240,R2130,R2131,R2134,R2135
90021	SMD RESISTOR	1/16W 6.8K ±5% 0603	PCS	2	R2136,R2148
0090023	SMD RESISTOR	1/16W 10K ±5% 0603	PCS	15	R252,R309,R311,R313,R314,R328~R330,R332,R333,R2102,R2106,R2108,R2109,R274
0090024	SMD RESISTOR	1/16W 15K ±5% 0603	PCS	2	R223,R334
0090188	SMD RESISTOR	1/16W 18K ±5% 0603	PCS	1	R335
0090025	SMD RESISTOR	1/16W 20K ±5% 0603	PCS	6	R312,R315,R316,R336,R2132,R2156
90255	SMD RESISTOR	1/16W24K±5% 0603	PCS	2	R2129,R2133
0090034	SMD RESISTOR	1/16W 100K ±5% 0603	PCS	7	R224,R246,R308,R310,R2101,R2111~R2112
0090197	SMD RESISTOR	1/16W 150K ±5% 0603	PCS	2	R319,R320
0090231	PRECISION SMD RESISTOR	1/16W 680K ±1% 0603	PCS	2	R317,R318
0090319	PRECISION SMD RESISTOR	1/16W 750K ±1% 0603	PCS	1	R227
375	CARBON FILM RESISTOR	1/4W2.2Ω±5%	PCS	1	R327
0260019	CD	CD11 16V10U±20%5×11 2	PCS	9	TC201,TC202,TC217,TC225~TC226,TC232,TC233,TC240,TC241
0260009	CD	CD11 10V47U±20%5×11 2	PCS	12	TC203~TC206,TC211,TC237,TC238,TC302~TC304,TC308,TC309
0260012	CD	CD11 10V100U±20%5×11 2	PCS	2	TC214,TC231
0260040	CD	CD11 25V100U±20%6×12 2.5	PCS	2	TC215,TC216
0260013	CD	CD11 10V220U±20%6×12 2.5	PCS	8	TC207~TC209,TC212,TC236,TC245,TC301,TC305
0260028	CD	CD11 16V220U±20%6×12 2.5	PCS	1	TC235
0310043	SMD CAPACITOR	50V 22P ±5% NPO 0603	PCS	3	C222,C275,C276
0310045	SMD CAPACITOR	50V 47P ±5% NPO 0603	PCS	8	C253,C254,C257,C258,C259~C262
0310047	SMD CAPACITOR	50V 101 ±5% NPO 0603	PCS	2	C2111,C2114

0310596	SMD CAPACITOR	50V 121±20% 0603	PCS	4	C263~C266
0310048	SMD CAPACITOR	50V 151 ±5% NPO 0603	PCS	2	C304,C306
0310051	SMD CAPACITOR	50V 331 ±5% NPO 0603	PCS	2	C318,C319
0310052	SMD CAPACITOR	50V 391 ±5% NPO 0603	PCS	1	C233
0310066	SMD CAPACITOR	50V 102 ±10% 0603	PCS	6	C223,C231,C272,C2112,C2115,C2116
0310231	SMD CAPACITOR	50V 122 ±10% 0603	PCS	2	C2122,C2129
310067	SMD CAPACITOR	50V 152 ±10% 0603	PCS	1	C217
0310068	SMD CAPACITOR	50V 222 ±10% 0603	PCS	3	C221,C307,C310
0310071	SMD CAPACITOR	50V 682 ±10% 0603	PCS	1	C294
0310072	SMD CAPACITOR	50V 103 ±10% 0603	PCS	1	C215
0310201	SMD CAPACITOR	50V 153 ±10% 0603	PCS	1	C316
310055	SMD CAPACITOR	16V 333 ±10% 0603	PCS	1	C225
0310056	SMD CAPACITOR	16V 473 ±10% 0603	PCS	2	C219,C220
0310084	SMD CAPACITOR	50V 104 +80%-20% 0603	PCS	76	C207~C214,C216,C224,C226~C230,C234~C252,C268~C271,C273,C274,C278~C283,C289~C293,C295,C296,C301~C303,C305,C309,C311~C315,C317,C320,C326~C329,C345,C2140~C2145
0310058	SMD CAPACITOR	25V 104 +80%-20% 0603	PCS	76	C207~C214,C216,C224,C226~C230,C234~C252,C268~C271,C273,C274,C278~C283,C289~C293,C295,C296,C301~C303,C305,C309,C311~C315,C317,C320,C326~C329,C345,C2140~C2145
0310234	SMD CAPACITOR	16V 105 +80%-20% 0603	PCS	5	C201~C205
0390044	SMD INDUCTOR	10UH ±10% 2012	PCS	3	L207,L303,L306
0390096	SMD INDUCTOR	1.8UH ±10% 1608	PCS	4	L210, L212~L214
0390057	MAGNETIC BEADS INDUCTOR	RH354708	PCS	10	L218~L223,L226,L229,L302,L205
0390095	SMD MAGNETIC BEADS	FCM1608K-221T05	PCS	26	L206,L208,L209,L215,L217,L227,L228,L230~L234,L301,L304,L305,L307~L309,L311,L318,L321~L324,R229,L313
0700007	SMD DIODE	1N4148	PCS	14	VD201,VD205~VD211,VD214~VD219
0700001	SMD DIODE	LS4148	PCS	14	VD201,VD205~VD211,VD214~VD219
0700002	SMD DIODE	LL4148	PCS	14	VD201,VD205~VD211,VD214~VD219
0780050	TRIODE	S8050D	PCS	2	V307,V308
0780049	TRIODE	S8550D	PCS	2	V306,V309
0780063	SMD TRIODE	9015C	PCS	1	Q204
0780197	SMD TRIODE	C1815	PCS	3	Q205~Q206,Q212
0780198	SMD TRIODE	2SA1015	PCS	3	Q211,Q218,Q219
0780040	SMD TRIODE	3904 SOT-23	PCS	2	V305,V310
0780193	SMD TRIODE	2SK3018	PCS	2	V303,V304
0780115	SMD TRIODE	2SB1132	PCS	2	V301,V302
880185	IC	NJM4558M SOP	PCS	1	U219
0880562	IC	4580 SOP	PCS	1	U219
0880361	IC	4558 SOP	PCS	1	U219
0880322	IC	MM74HCU04M SOP	PCS	1	U205
0880513	IC	HCU04 SOP	PCS	1	U205
882104	IC	HY57V161610ET-7 TSOP	PCS	2	U203,U204
0881275	IC	IC42S16100-7T SOP	PCS	2	U203,U204
0881182	IC	LM1117MP-ADJ SOT-223	PCS	1	U209
0881057	IC	CS4360 SSOP	PCS	1	U207
0881031	IC	24C02N SOP	PCS	1	U202
0882293	IC	MT1389XE(D VERSION) QFP	PCS	1	U201
0881378	IC	BA5954FP HSOP	PCS	1	U302
0960020	CRYSTAL OSCILLATOR	27.00MHz 49-S	PCS	1	X201
1940140	CABLE SOCKET	14P 1.0mm STRAIGHT DUAL LINE PLUG	PCS	1	XS204
1632274	PCB	2967D-5	PCS	1	
1940007	SOCKET	7P 2.5mm	PCS	1	XS203
1940094	CABLE SOCKET	24P 0.5mm SMD WITH CLASP	PCS	1	XS301

1940024	SOCKET	5P 2.0mm	PCS	1	XS302
1940005	SOCKET	6P 2.0mm	PCS	3	XS303,XS201,XS304